

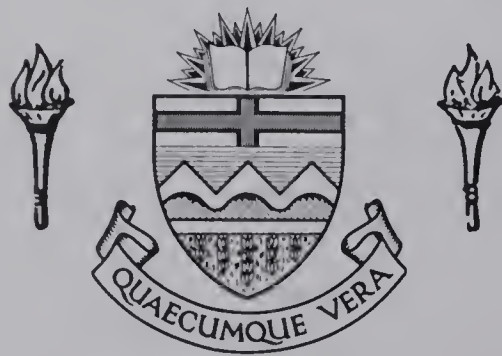
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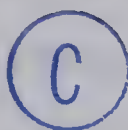
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AN EXPLORATIVE STUDY OF FACTORS AFFECTING
OUTDOOR RECREATION DEMAND OF THE EDMONTON
ADULT POPULATION, ALBERTA, CANADA

by



PETER JOHN DOOLING

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "An Explorative Study of Factors Affecting Outdoor Recreation Demand of the Edmonton Adult Population, Alberta, Canada" submitted by Peter John Dooling in partial fulfillment of the requirements for the degree of Master of Arts.

AN ABSTRACT OF A THESIS

FACTORS AFFECTING RECREATION DEMAND, EDMONTON, CANADA

This study, designed to increase the knowledge about "shifters" of outdoor recreation demand, had within this prime focus three other objectives: (1) to estimate the current demand for twelve activities; (2) to find mathematical functions to describe the relationships between participation and socio-economic variables so as to incorporate greater "objectivity" into planning for recreation; and (3) to expose the recreational travel patterns of the Edmonton adult population during the period June 1, 1965 to May 31, 1966.

Data were collected by mailed questionnaires from a residence-based, equal-interval random sample design. Of the 452 questionnaires distributed 210 completed questionnaires were returned. Each sample person had only one three month period to consider. The questionnaire technique consisted of an introductory letter plus two follow-up procedures and was designed to obtain data on participation and preferences in outdoor activities, on socio-economic and demographic factors and on distances traveled to recreation areas.

Data analysis consisted of comparing participation, measured in activity days, in three indices of total participation, six planning categories of various types of participation and twelve activities as the dependent variables with characteristics of participants as the independent

variables using multiple stepwise linear regression technique, separated by sex. The independent variables studied were: own education, residential distance zone, family income, age, generations urban, degree of metropolitanism and head's education. Seventeen hypotheses, for males and females, were advanced and tested. Of this, fourteen were accepted of which four for each sex were significant at the .05 level or less. Most hypotheses accepted differed by sex. The study isolated 44 significant relationships each of which was tabled by sex showing the predictive linear equation, standard error, nature of the relationship, correlation coefficient, and significance level. In addition, for planning and policy illustration, income-consumption curves were constructed and income elasticities computed for male adult participation in the activities of hunting and picnicking.

Concerning recreation travel patterns, a noteworthy observation was the greater travel to those recreation areas within the Edmonton region where variety could be obtained or at least expected. This observation tends to emphasize, as a planning necessity, a recreation complex providing a "cafeteria" of recreational opportunity within travel range of the desired future forms of leisure time--shorter working hours per day and the four day work week.

ACKNOWLEDGMENTS

This research project was large by most standards and dealt with a relatively new area of investigation. It would not have been possible without the cooperation and guidance of many people. To my committee members Dr. J.C. Hackler, Department of Sociology, Dr. R. Macnab and in particular to Mr. R.G. Glassford, both of the Faculty of Physical Education, I express my deepest gratitude. In addition, to Dr. M.L. Van Vliet, Dean, and Dr. M.L. Howell, Head of Graduate Studies, Faculty of Physical Education, for covering the expenses associated with the printing of the questionnaires, I express my appreciation.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

Increasing income and expanding leisure, which are proceeding from the continuing growth of productivity in Canadian society, are generating a deep-seated cultural transition from the values of work and production toward those associated with consumption and leisure. This cultural transition in association with increasing population and mobility have resulted in noticeable increases in the demand for outdoor recreational experiences. However, at present, there is a dearth of knowledge of the factors affecting the demand for recreation. In addition, within the traditional recreation research literature, there has been virtually no attempt towards welding these factors, as they apply to entire urban or regional populations, into an objective recreation planning methodology. Recreation resources planning has been and still remains primarily a "subjective" art of the recreation planner; his subjectivity, in turn, conditioned by his past and present environment. This type of planning has resulted in acute gaps in the recreation fabric of the urban population of the City of Edmonton and is one serious factor among many accounting for the lack of a well-balanced park and recreation system. A more desirable and increasingly necessary recreation resources planning

framework is not to do away with the "art" in planning but to frame this art within a scientifically established "objective" planning methodology. Further, a sound recreation program is not one ready made and superimposed on people. A basic step in enriching the recreation life of the Edmonton population may well be learning what factors in their lives are associated with activity choices, and then to encourage facility planning and program development in light of these associated factors. This study is designed to help fill these basic needs; that is, to increase the knowledge about "shifters" of outdoor recreation demand and to incorporate "objectivity" into planning for recreation.

Objectives of the Study

The four main objectives of this study are:

- (1) to estimate the current demand for twelve selected outdoor recreation activities of the Edmonton adult population;
- (2) to isolate significant factors which affect or "shift" the demand for outdoor recreation of the Edmonton adult population and to test separately for males and for females seventeen hypotheses about the relationship between participation as the dependent variable and socio-economic factors as the independent variables;
- (3) to find a mathematical function(s) that can be used to describe the relationship between the dependent variable

and one or more independent variables so as to incorporate objectivity into planning for recreation; and

(4) to develop and present graphically the recreational travel patterns of the Edmonton adult population during the period June 1st, 1965 to May 31st, 1966.

In line with objective two, it is generally believed that personal, family, and social characteristics have influences on the use of leisure-time outdoors. It is desirable, then, to identify (and measure, if possible) the effects which certain factors have on participation in outdoor recreation; that is, on the TYPE of outdoor recreation pursued, on the NUMBER of outdoor recreation activities participated in, and on the AMOUNT of outdoor recreation consumed. By way of example, it is desirable to study and determine whether the factor "metropolitanism" as a way of life tends to increase, decrease, or leave unchanged the amount of outdoor recreation consumed by the Edmonton adult population.

Concerning objective three, Freese (1:1) states, "Regression analysis provides an objective and widely accepted routine for fitting mathematical models involving several variables." In addition, the most common applications of regression methods have been in testing a hypothesized relationship and in finding mathematical models to describe a relationship between a dependent variable and one or more independent variables. Such technique, to

illustrate, might be used in predicting the value of Y (participation in outdoor recreation) that would, on the average, be associated with any particular combination of X values (socio-economic and demographic factors); it could also be useful in selecting a combination of X values that might be associated with some specified value of Y; and it could suggest how changes in Y are associated with changes in any of the X variables.

Need for the Study

Practical value. The significance of outdoor recreation lies in the statement often made, that regardless of man's significant future discoveries or accomplishments, the future of mankind critically depends not on the use made of new lands discovered in space, but on the use made of the lands at man's disposal on this planet. It follows that what is true for all, is true for a part. Further, whatever the precise shape of future Edmontonian society, there is general agreement that Edmonton will have a population considerably larger than the present 357,696 persons ((2:9): 1980 Edmonton urban population projected at 658,000 (3:2)), and that Edmontonians will be better housed and fed, have higher disposable incomes, more leisure, and will need more space in which to spend that leisure time.

Additional pressures may also be in prospect due to the changing philosophy among social groups with regard to leisure and recreation as positive values, the increasing

percentage of family budgets assigned to recreation and the increasing desire for recreation diversity. These and other complementary factors in combination suggest even greater demand for recreation areas and facilities in the future than is evident today.

However, little precise knowledge exists as to the characteristics of or demands of current Edmonton outdoor recreation user-publics. The lack of any but the most rudimentary knowledge about outdoor recreation demand and activity patterns have resulted in an almost virtual disregard for outdoor recreation as a legitimate factor in the formulation and development of the Edmonton Regional Land-Use Plan. Any regional plan should be based on an analysis of the forces that have shaped the region in the past and predictable forces which are likely to affect it in the future. Regional outdoor recreation resources planning for the people and hence the opportunities for wildland outdoor recreation experiences of the people has been one major force which traditionally has been neglected. It no longer should or can be! One thing is certain in this regard: the sound planning and administration of a region's natural resources and of the uses of these resources must be predicated upon research of not only the resources themselves, but also of those changing demands and values of a dynamic social milieu. Further, Wantrup (4:43) holds that:

. . . if demand is to serve as a principle of orientation for public land and water policy - that is, to

help in planning on the supply side - problems of demand and supply need to be separated conceptually and, in empirical investigation, variables pertaining to demand ("ends") must be differentiated from those pertaining to supply ("means").

Progressing in thought, Clawson and Knetsch (5:14), two land economists with Resources for the Future state:

. . . an understanding of present demands, and how they are changing over time, has become of major importance in resource planning and policy formulation.

This is, in part, the practical value of this study.

In addition, this demand analysis of Edmonton outdoor recreation has implications for: (1) suppliers of public recreational facilities (provincial and local public officials and planners), (2) entrepreneurs who provide recreational facilities for profit, (3) suppliers of outdoor recreational equipment (manufacturers, wholesalers, retailers), (4) operators of establishments such as motels, restaurants, and service stations who deal with recreationists, and (5) others such as clergymen and conservationists, who are directly or indirectly affected by recreation. Problems of conservation of natural resources are often well served by recreational development.

New problems have emerged, some from the special requirements inherent in the nature of recreation, others from the changing character of Edmonton urban living. The increasing concentration of people, particularly young people, and activities in the Edmonton metropolitan area, the pace of Edmonton urban expansion (second highest percentage growth in Canada (6:64)), the ever-increasing

mobility of the population, the needs for psychic renewal generated by the tempo and environment of urban life--particularly of northern urban life with its elongated cold season and its resultant effect of elongated indoor living--are but a few examples. As for the nature of outdoor recreation within the Edmonton region, there is a specific and increasingly serious problem generated by the complete absence of regional parks to serve the metropolitan Edmonton population. The serious problem lies in the increasing danger to the Canadian National Park concept inherent in the increasingly popular thinking, by the Edmonton population in part and by the Alberta provincial government in particular, that Jasper National Park exists for local recreation purposes and should therefore be managed accordingly. These problems and the increasing pace of Edmonton's urban expansion, particularly on lands adjacent to the metropolitan area where most of the outdoor recreation demand will be generated, makes early action necessary.

Higgs (7:64) states: "In general, the provision of outdoor recreation opportunities for the residents of densely settled metropolitan areas have not been accorded equal weight in the metropolitan resource utilization contest."

Once an area has been placed in urban use it is virtually impossible, due to economic, political and human dislocation factors, to return it to outdoor recreation use. Thus, in the complicated chains of events, present and

probable future requirements for outdoor recreation areas and facilities within the Edmonton region can be determined only after a thorough analysis of supply and demand and after recreation standards for that locality have been developed.

Further, it must be recognized that the influence of location results from conditions of accessibility and that in turn leisure preferences are conditioned by locational factors. Changes in locational factors, for example in time and distance accessibility conditions, may give rise to changes in preferences. There is therefore a vital linkage between the location of outdoor recreation areas, the accessibility of these areas, the mobility of the population, and the rate of participation of that population in outdoor recreation activities. This complex interrelationship, to be woven in urban and regional comprehensive planning, necessitates a cognizant planning body. Only recently, however, because of the increasingly rapid growth of outdoor recreation during the past two decades and the phenomenal future growth in demand expected, has the planning for the recreational mobility-accessibility of populations become respectable. Voorhees (8:106) in a paper presented to the Town Planning Institute of Canada in June, 1963 stated:

As for the social and recreational trip, I feel that with our increased standard of living, we can expect nothing but additional increase. . . This undoubtedly will put greater strain on our transportation facilities, particularly those that are serving the key recreational areas. . . We undoubtedly should be

doing more transportation planning for our recreation needs than we have done in the past. Along this line, several recent transportation studies are developing a special analysis of recreational travel and plan to take recreation needs into consideration in designing for all future highways.

With this in mind, it is particularly important that highway planning be coordinated with recreation planning in order to improve access to recreation areas, and to minimize encroachment of highways upon recreational resources.

In the Edmonton Metropolitan Transportation Study of June, 1963 (9), there seemingly is a major kind of activity investigation missing from the basic series of planning surveys that were undertaken. This is what might be called a study of urban activity systems concentrating on the leisure activities of Edmonton households (10:223). Leisure activities will undergo, barring a major catastrophe, notable changes and these changes, in turn, are expected to have direct effects on the demand for land uses associated with recreation and indirect effects on other land uses through consequent changes in nonrecreational activities; all this in turn affecting transportation routes. There is a need, therefore, for the urgent understanding of the magnitude of present demands for outdoor recreation of the Edmonton population and of the associated travel patterns. These are essential component parts to the formulation of a realistic transportation plan. This failure to consider the effects of recreation-transportation interrelationships could run the risk of being costly, if not now, in the

future in terms of economic and social costs to both the community and the individual.

Gans (11:240), a sociologist-urban planner, states:

Insofar as recreation can aid in the maximization of mental health, this is best done by providing those recreation facilities that are in demand, and that are likely to be in demand in the future. This means that recreation planning must adopt a market-oriented approach to find out what its consumers want now.

An apparent need to commence this market-oriented approach to outdoor recreation planning revolves about the need for this study; that is, about the question 'what type and how much outdoor recreation does the Edmonton population consume and prefer?

Academic value. The weak, if not missing link, in the planning of many expensive and increasingly more expensive recreation systems is the prediction of human behavior. In fact, in almost any discussion of planning one is likely at some point to find a statement to the effect that, in addition to the considerations which have been analyzed, there are also psychological, social, and political intangibles which are essentially unpredictable. This is folly, though not pure folly, for it is based upon a deep and not entirely groundless conviction that we don't know how to research such factors. Our methodological approach to these factors as they affect recreation participation of a population have been intellectually lazy.

The academic value of this study lies not in the realm of any grand theory discovery; but rather in helping to isolate and over time to focus upon well-documented

regularities which while not necessarily surprising (although some may well be) neither are they self-evident. Thus they do constitute knowledge--a growing body of which is desperately needed within recreation for as Wingo (12:131) states:

The special significance of recreation lies in its potential to become, over the long-run, an effective instrument of accommodation as we evolve from a society based on values of work and production to one in which leisure and consumption are the salient features.

In summary, the value lies then not in finding bright ideas or theories but in finding ways to link and use large numbers of relatively trivial variables all at once, no one of which accounts for much of the variance, but all of which are simultaneously operating in the real situations of the decision-making process whether to participate or not in outdoor recreation.

Hypotheses

Several factors influence an individual's participation in outdoor recreation. Many of these factors are observable and measurable. Others, such as the degree to which a person subscribes to the work ethic, availability of facilities, competitive drive, level of material aspirations, irrational prejudices, value system and recreation consumer fads are much harder to observe and measure. These are not included in this study. Hypotheses are separated by sex.

Hypothesis 1A: The TYPE of outdoor recreation pursued is related to age. The older one is, the more passive his

outdoor recreation pursuits--as measured by the index of amount of passive participation.

Hypothesis 1B: The NUMBER of outdoor recreation pursuits is related to age. The older one is the fewer his outdoor recreation pursuits--as measured by the total number of activities participated in.

Hypothesis 1C: The AMOUNT of outdoor recreation consumed is related to age. The older one is the lesser the amount of outdoor recreation consumed--as measured by (1) the activity score, and (2) the total amount of participation in activity days.

Hypothesis 2A: Since education develops skills, the TYPE of outdoor recreation pursued is related to education. The more educated the person the more active the recreation pursuits of that person--as measured by the amount of active participation index.

Hypothesis 2B: Since education creates interests, the NUMBER of outdoor recreation pursuits is related to education. The more educated the person the greater the number of activities participated in--as measured by the total number of activities participated in.

Hypothesis 2C: The AMOUNT of outdoor recreation consumed is related to education. The more educated the person the greater the amount of outdoor recreation consumed--as measured by (1) the activity score, and (2) the total amount of participation in activity days.

Hypothesis 3A: The TYPE of outdoor recreation pursued is related to generations urban. The greater the number of consecutive generations as urban-dweller in a person's family tree the greater the participation in regional (resource-oriented) recreation--as measured by the index of amount of regional-based participation.

Hypothesis 3B: The NUMBER of outdoor recreation pursuits is related to generations urban. The greater the number of consecutive generations as urban-dweller in a person's family tree the greater the number of activities pursued--as measured by the total number of activities participated in.

Hypothesis 3C: The AMOUNT of outdoor recreation consumed is related to generations urban. The greater the number of consecutive generations as urban dweller in a person's family tree the greater the amount of outdoor recreation consumed--as measured by (1) the activity score, and (2) the total amount of participation in activity days.

Hypothesis 4A: The TYPE of outdoor recreation pursued is related to residential concentric distance zone. The nearer a person resides to city center the greater the participation in regional (resource-based) outdoor recreation--as measured by the index of amount of regional-oriented participation.

Hypothesis 4B: The NUMBER of outdoor recreation pursuits is related to residential distance zone. The nearer a

person resides to city center the greater the number of activities pursued--as measured by the total number of activities participated in.

Hypothesis 4C: The AMOUNT of outdoor recreation consumed is related to residential distance zone. The nearer a person resides to city center the greater the amount of outdoor recreation consumed--as measured by (1) the activity score, and (2) the total amount of participation in activity days.

Hypothesis 5A: The TYPE of outdoor recreation pursued is related to family income. First, the greater the family income the greater the participation in active pursuits--as measured by the index of amount of active participation. Second, the greater the family income the greater the participation in water-oriented recreation--as measured by the index of amount of water-oriented outdoor recreation. Third, the greater the family income the greater the participation in high-cost pursuits--as measured by the index of amount of high-cost facility participation.

Hypothesis 5B: The NUMBER of outdoor recreation pursuits is related to family income. The greater the family income the more numerous the outdoor recreation activities--as measured by the total number of activities participated in.

Hypothesis 5C: The AMOUNT of outdoor recreation consumed is related to family income. The greater the family income the greater the consumption of outdoor recreation--as measured by (1) the activity score, and (2) the total amount of participation in activity days.

Hypothesis 6A: That metropolitanism as a way of life in the Edmonton population and as measured by the 'degree of metropolitanism' scale tends to increase the NUMBER of outdoor recreation pursuits--as measured by the total number of activities participated in.

Hypothesis 6B: That metropolitanism, similarly measured, tends to increase the AMOUNT of outdoor recreation consumed --as measured by (1) the activity score, and (2) the total amount of participation in activity days.

Limitations

(1) The conclusions pertaining to the seven independent variables are subject to the limitation of cross-sectional data. By way of example, the factor 'metropolitanism' as a way of life of the Edmonton population is subjected to the limitation of cross-sectional data. Thus the longitudinal type conclusions made concerning this factor are questionable not only by reason of the nonrefined classification table employed but primarily because it constitutes static rather than dynamic data, and such data provide no basis for measuring change. This limitation necessitates, therefore, the realization of the fact that, at this juncture, the full implications of the rapidly increasing urbanization and metropolitanization of the Edmonton population on outdoor recreation demand cannot be definitely known.

(2) Time and cost limitations resulted in restrictions upon desirable sample size and in the decision that the analysis

of data be concerned only with fitting the general linear model and that underlying assumptions may not be fully met.

(3) This study assumes that the effects of the independent variables upon participation are additive; that is, that the slope of the regression line remains unchanged but the value of the Y intercept is a linear function of the independent variables.

(4) This study is limited by the reliability of respondent responses.

Delimitations

(1) This study is delimited to an explorative type in which multiple stepwise linear fitting technique is useful since little or nothing is known about the nature of the relationships involved between participation in outdoor recreation and user-characteristics of the Edmonton adult population.

(2) This study is delimited to the present consumption of outdoor recreation by the Edmonton adult population twenty-one years of age and older living within the legal limits of the City of Edmonton as of April, 1966. Further, it makes no attempt to relate this population's participation to the recreation potential of natural and man-made resources (to the supply of outdoor recreation resources within the region) or to the qualitative aspects of participation in outdoor recreation.

(3) The study is delimited to cross-sectional data collection and analysis of seven selected socio-economic and

demographic factors which appear as major determinants of the propensity to engage in outdoor recreation. Explanatory variables studied are: sex, age, education, family income, residential distance zone, generations urban, and degree of metropolitanism. Such other determinants of outdoor recreation participation as competing leisure activities, availability of outdoor recreational facilities, the influence of relevant attitudinal and motivational factors, the amount of leisure time the person himself perceives as having, and the health and the presence or absence of physical impairments of the person, which might well affect the degree and type of the respondent's participation in outdoor recreation activities were not considered.

(4) The study is delimited by cultural restrictions.

Generally, culture limits participation through norms for behavior which originate in religion, legal restrictions, male-female role prescriptions, and other traditions or customs which provide a behavior pattern. Such cultural factors undoubtedly affect and usually limit outdoor recreation participation of at least part, if not all, of the Edmonton population.

(5) The study is delimited by organizational factors which have their impact on participation. Activity clubs provide channels for learning and the reasons for status achievement.

Definitions

General definitions. Although standard terminology is used wherever possible, some terms require more concise definitions for purposes of this study.

(1) Outdoor recreation: a means to leisure behavior outdoors with 'means' operationally confined to the following twenty-five activities: bicycling, horseback riding, playing outdoor games or sports, fishing, canoeing, sailing, other boating, swimming, water skiing, hunting, camping, mountain climbing with gear, hiking with pack, walking for pleasure, wildlife and bird photography, nature walks, picnics, driving for pleasure, sightseeing, attending outdoor sports events, attending outdoor concerts, plays, etc., ice skating, snow skiing, sledding and tobogganing, and snowshoeing for pleasure.

(2) Leisure time: time free from the normal activities of making a living or providing for the basic human needs.

(3) Consumption of outdoor recreation: the estimates of amount of participation in these various selected types of outdoor recreation activities expressed in activity days.

(4) Activity day: a day or any part of a day in which the respondent engaged in the activity, one or more times.

That is, it is the amount of participation by one person, engaging in one activity in one day, whether the person spends all or only a part of the day in this activity.

(5) Edmonton adult population: all males and females

twenty-one years of age or older living within the legal limits of the City of Edmonton as of April 1st, 1966.

Activity definitions.

- (1) Bicycling: any bicycle riding done only for pleasure during leisure time available. Riding a bicycle to work or to school is not included even though the person derives pleasure from riding.
- (2) Horseback riding: defined as including only recreational riding. Riding as part of a job such as a cowboy or mounted policeman is not included.
- (3) Playing outdoor games and sports: defined as including all team sports, dual, and individual sports utilizing the outdoors.
- (4) Fishing: defined as the taking of fish for noncommercial and for sport purposes. Fishing for commercial purposes or other nonsport fishing are not included.
- (5) Canoeing: the recreational use of any narrow light boat moved with paddles, not oars.
- (6) Sailing: the recreational use of any vessel with sail primarily intended to be propelled by wind. Sailboats with auxiliary engines or sailing dinghys equipped with sail and if primarily intended to be sailed rather than rowed, are included.
- (7) Other boating: the recreation use of any boat other than canoes or sailboats is included here. This category includes the use of rowboats, outboard motor boats, inboard motor-boats, rafts, floats, houseboats and so forth.

(8) Swimming: any water-bound activity not conditioned by mechanized power. This category includes bathing, playing in the water, and includes skin diving, scuba diving, and surfboarding.

(9) Water skiing: defined as including any of the various sports where the person is towed behind a boat. This includes the use of aquaplanes, water skis or any other apparatus of this type.

(10) Hunting: the search for or the stalking of animals for sport in order to kill them for recreational purposes primarily. No forms of commercial hunting are included.

(11) Camping: the living out-of-doors overnight using for shelter a bedroll, sleeping bag, trailer, tent, or a hut open on one or more sides, if the person takes his bedding, cooking equipment and food with him. Formal camps, such as Boy Scout camps, are not included.

(12) Mountain climbing with gear: defined as eliminating any climbing of hill or rock which does not require the use of climbing gear. Gear includes a rope and any other equipment such as axes, spiked shoes, crampons, and so forth.

(13) Hiking: defined in terms of the limitation "on trail with pack" and excludes walking and nature walks.

(14) Walking for pleasure: defined as any walking not included under Hiking or Nature Walks, from early morning 'constitutionals' to long all day walks which do not require a pack.

- (15) Wildlife and bird photography: the taking of natural flora and fauna pictures for recreational purposes only.
- (16) Nature walks (to observe birds, animals, plants, etc.): defined as including walks for the purpose of observing either plants, birds or animals, and the collection of specimens, etc.
- (17) Picnics: an outdoor activity away from home the primary purpose being the preparation or eating of a meal out-of-doors.
- (18) Driving and riding for pleasure: defined as both driving and riding primarily for pleasure. Activities such as racing are included under sports and games.
- (19) Sightseeing: defined as consisting of looking at something of interest, the major limitation being that the sightseeing must be intentional. Excluded are such things as casually looking from the car window during a trip. If the person took a particular route or went out of his way to see a particular sight, it is classified as sightseeing.
- (20) Attending outdoor sports events: attendance at any outdoor sports event as a spectator in which the respondent is not a participant, official or other such employee of that particular event. The same events are included here as in playing outdoor games or sports.
- (21) Attending outdoor concerts, drama, etc.: defined as including musical, dramatic, artistic or other nonsporting events which are conducted out-of-doors. Attending drive-in movies is excluded.

(22) Ice skating: any noncompetitive outdoor recreation ice-skating. Competitive skating including hockey, figure skating contests and so forth are classified as "playing outdoor games and sports."

(23) Snow-skiing: defined as including noncompetitive recreation use of skis on snow. Amateur competitive skiing is included in the category "playing outdoor games or sports." Professional skiing is not included in this study.

(24) Sledding and tobogganing: the recreation use of a sled, toboggan, bobsled, or similar vehicle designed for sliding over snow or ice.

(25) Snowshoeing: the use of racket-heads or long narrow webbed boards attached to the feet and enabling the wearer to traverse a snowed area primarily for pleasure.

Definitions of selected explanatory variables.

(1) Age: defined as of the last birthday of the respondent and is subdivided into six classes for analytical purposes.

(2) Education: defined as the highest grade completed of the following classes by grade:

Never attended school.

Kindergarten.

Elementary school (each of grades one through eight).

High school (each of grades nine through twelve).

University (each of years one through six or more).

Regular school is defined as that which leads toward elementary or high school diploma or a college, university, or professional school degree. Attendance was accepted if full or part-time, day or night school.

(3) Family income: defined to include wages and salaries, business profits, net farm income, pensions, rents, and any other money income received by all members of one family during the year 1965. Subgrouped into eight classes for analytical purposes:

Under	\$ 2,000
\$ 2,000 -	3,999
4,000 -	5,999
6,000 -	7,999
8,000 -	9,999
10,000 -	14,999
15,000 -	19,999
20,000 -	and over.

(4) Generations urban: the number of consecutive generations in a person's family tree that were urban dwellers. An urban dweller is defined as a person living in a community larger than 10,000 persons. Grouped into four classes as follows:

- 1 generation (myself only)
- 2 generations (myself + parents)
- 3 generations (myself + parents + grand-
parents)
- 4 generations or more.

(5) Residential distance zone: the concentric distance in miles from the center of the City of Edmonton, 101st Street and Jasper Avenue.

Definitions of trip characteristics.

- (1) Vacation trip: is a trip of more than three days which the respondent regarded as a vacation.
- (2) Overnight trip: a trip covering two successive calendar dates which was taken primarily to participate in any of the

twenty-five outdoor recreation activities considered in this study.

(3) Recreation outing: an outdoor occasion away from home occupying the better part of a day and undertaken to partake in any of the outdoor activities considered in this study.

Definitions of measures of participation.

(1) Activity days per participant: is the accumulated number of reported days of participation divided by the number per sex who reported any participation.

(2) Activity days per person: is the accumulated number of reported days of participation divided by sample size for each sex. Sample size is the number of final sample cases for each sex without regard to whether or not they actually participate.

(3) Per capita participation: is the average number of activity days per person in the total sample, regardless of sex or whether or not they actually participate. It is total activity days participation divided by total sample size.

(4) Percent of persons participating: is the number of persons reporting participation in an activity during any vacation, trip, outing, or other recreation occasion divided by total sample size.

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CHAPTER II

HISTORICAL STATUS OF THE PROBLEM

One must realize at the outset that whether at any given time in history man recreates for pleasure and self-expression, as the literature suggests, his motivations to participate are to a large extent culturally determined. However, the cultural role of outdoor recreation in Canadian society is little understood and little studied. For this reason, the objective of this literature review is to help provide the reader with a sufficient framework in which to view this study. Part I, which is somewhat philosophical in nature, views recreation from its psychological and sociological treatments and commences with a conceptual problem found in most literature pertaining to leisure and leisure activities. Part II reviews the major recreation demand studies completed since 1960. Part III deals with the demographic and socio-economic variables found in the research literature as being significantly associated with recreation participation and are, in turn, assumed to be "shifters" of recreation demand.

Part I: Philosophical, Psychological, and Sociological Treatments

Leisure, in modern society, is one of the neglected areas of study and as a consequence of this comparative neglect there is the lack of adequate conceptualization in

this field. Even more than in most areas of study, terminology has been adopted "en bloc" from everyday language. The term 'leisure' itself has been used in a variety of different meanings. The term is held to imply, however vaguely, the necessary existence of a body of desirable qualities and hence is difficult to get some measure of objectivity in determining just which activities constitute leisure, and which do not. Historically, definitions usually have involved evaluative criteria of 'useful' activity which relate to the 'proper use' of leisure and so mask a sort of intellectual priggishness which condemns some activities and condones others (1). Today's popular trend is to recognize all nonwork time as leisure (2).

Further, there has been conceptual confusion and ambiguity in the use of such key terms as 'leisure', 'play', and 'recreation'. These three have often been used interchangeably. Some writers (3) use 'play' as synonymous with 'leisure'; others limit the term to refer only to leisure activities which bring pleasure to the individual; and still others (4) substitute recreation for play in this same meaningful context of time used according to individual preference for pleasure. That is, a large number of writers do not employ the term 'play'; rather, in their usage 'play' is an activity of children which gives way to 'recreation' sometime during adolescence (5). Others (6:75) suggest "There is no reason to suppose that play ceases sometime

in early adolescence, or to start calling it 'recreation' rather than 'play'". Still others wish to subdivide further and identify leisure time used to meet social obligations to family and society as semi-leisure; those not in accord with this term prefer to call it nonwork, while others (7) suggest the term 'choring'. That is, leisure may take on the character of choring if and when it becomes obligatory. Thus, while recreation or play is seen as activity turned to by individual choice for personal pleasure, choring tends to be socially motivated.

Adult play is not psychologically nor sociologically identical with the play of children, since its character is determined partly by its juxtaposition with work. Here to many hold that we must distinguish between recreation as a cultural pattern and the spontaneous activities of a young child at play. (For reason of these conceptual differences, this study views leisure activities which bring pleasure to the individual adult as recreation and not as play.) As Erikson (8:186) points out, while children's play, at least in infancy, is directly connected with the increasing mastery of reality, for the adult, recreation is a ". . . periodical stepping out from those forms of defined limitation which are his reality." This stepping aside from everyday reality has been suggested as the most important and intriguing characteristic of adult recreation. In this regard, the self-organized physical recreation of

three thousand British civilian prisoners-of-war of World War One in Ruhleben--a racetrack encampment on the outskirts of Berlin--is of particular interest. Ketchum (9:229), then a Canadian music student and prisoner of Ruhleben and later a social psychologist, states:

The organized sports of Ruhleben were often called the "salvation" of the prisoners, mentally as well as physically. It was not running about on a field, however, that kept them unscathed. It was rather the fact that they were playing their roles in a social world that had become as real and absorbing as that outside. It was a substitute world, admittedly, but not a pathological one, for it was a shared world, similarly perceived by all. And that is our only criterion of reality or sanity.

Sapora and Mitchell (10) stress the significance of play and recreation in today's modern life.

It has further been suggested that the character of the recreation of a group depends partly upon needs created, or left unfulfilled, in other spheres of life--particularly in work. Dubin (11) and others have explored some ways in which the importance that a group attaches to recreation as a 'life interest' is related to the character of the work situation.

In summary, there has been considerable disagreement about the essential characteristics of recreation as distinguished from any other type of activity. Writers (12:73-74) have employed as criteria of play or recreation, among other things, the following: the motivation to engage in the activity; the lack of obligation to participate in the activity; the effective components of the activity; the lack

of articulation of the activity with other activities; and the nonproductive character of the activity.

Psychological treatments of recreation. A considerable number of empirical studies of children's play have been reported by social psychologists; little has been done with adult recreation. Although the studies have suffered from considerable terminological confusion, there is an apparent agreement in the general conception of play. The most important lines of concensus have been: (1) that play behavior stems partly from biological sources, and (2) that play fulfills certain psychological functions for the one who engages in it. The two most stressed functions here have been: (a) that play, or at least some types of play, help dissipate personal tensions which have developed through other activity, and (b) that some kinds of play serve to provide satisfactions denied expression in other kinds of activity (13). The psychoanalytic writers, as exemplified by Freud and Menninger (14, 15), stress that play serves a cathartic function. In addition, Menninger views play as a catharsis which not only dissipates emotional tension, but which makes socially undesirable responses acceptable.

Giddens (16:86) suggested that the two major psychological functions of play in children are applicable to adult recreation. Ketchum (17:221) seemingly suggested something beyond these two functions for he emphatically stated that physical recreation ". . . was one of the early factors in the mental stabilization of the prisoners."

Sociological treatments of recreation. The need for the study of recreation through the research tools of sociology lies in the apparent fact that there is no relation of simple function between specific organic needs and man's cultural activities. The literature suggests that although organic factors are present and operative, another set of factors intervene between the impulse and the act. These are the factors represented in the beliefs, attitudes, behavioral practices and opportunities of the particular culture of which the individual is a part.

One approach to the study of recreation has taken the extremely wide view regarding recreation not only as a type of social behavior, but as a set of characteristics which can be found, in greater or less degree, in nearly all activity. Kroeber (18:29), for example, links the play impulse directly to social and technological invention.

A second and main approach to the study of recreation in sociology has been in terms of a polar contrast with work. Recreation is viewed as taking its characteristics largely from the organization of work in a society. Mead (19:163) stresses the view that the survival of any society depends upon its meeting a number of prerequisites of which, one of these, is a generalized social need to establish some kind of pattern of work and extra-work activity,

. . . which in most societies becomes transformed also into the way in which work--activity that is purposeful and directed towards ends that lie outside the activity --and play--activity which is self-rewarding--are alternated.

Part II: Major Recreation Demand Studies

Moving beyond the research methodology used prior to 1960, the demand studies of the Outdoor Recreation Resources Review Commission of the United States (hereinafter referred to as ORRRC) took on an aggregative and empirical approach to demand determination, in a definite advance over earlier methodologies. Of the twenty-seven separate and supporting ORRRC study reports, six pertain to demand facets. The approach used was not one of considering usage--past, present and future--for specific sites. Instead, measurement was population-centered. Home interviews were conducted to find rates of activity for the most popular outdoor recreation activities.

The most reliable and comprehensive study available to date is the United States National Recreation Survey published by the ORRRC as Study Report Number 19 (20). This survey was conducted according to the above mentioned ORRRC methodology and data were collected and tabulated by the United States Bureau of the Census. The survey was divided into four seasons: summer and fall (1960), winter and spring (1961). The number of random samples per season were increased in accordance with the population increase in a given Census Region. The demand analysis was based on activity occasions participated in by persons twelve years and older. The study report contains tables showing various participation rates by activity according to age, sex,

place of residence, education, occupation, and race. Activity rates were also shown by state of health, physical impairment, and size of community. Activity preference data were also expressed according to selected socio-economic characteristics. The analysis suggests the existence of associations between these socio-economic characteristics of the then current United States population and the rates at which the population then engaged in outdoor activities.

Another significant study, ORRRC Study Report Number 20, examined factors underlying recreation behavior and was conducted by the Survey Research Center, University of Michigan (21). This study encompassed a random sample of 2750 United State's adult householders. The study examined factors related to the use of leisure time and outdoor recreation, giving particular emphasis to camping and visits to Federal and State parks. It was an attempt to investigate and describe present day adult recreation participation and preferences through statistical presentation along with an analysis of selected factors thought to govern the 1960-61 demand for outdoor recreation among the American adult population. In identifying projectors of recreation participation, a multivariate analysis of background factors associated with total participation in outdoor activity was made. The study found the background factors sex, age, income, occupation, family life cycle, size of place of residence, race, region, and education significantly associated with

total participation in outdoor recreation. This, in turn, provided the basis for estimating the level of outdoor recreation of a person characterized by these demographic and socio-economic traits. Nevertheless, the factors employed explained but 28 percent of the variance for men and 29 percent for women in the total activity measure, indicating the need for studies encompassing additional variables or ". . . perhaps a somewhat greater proportion of the variance in outdoor recreation activity would have been explained if a more refined measure of participation could have been devised" (22:12).

Findings showed that the most popular activities were those where barriers to participation were minimal. Activities which required more physical effort, skill, money, and specialized facilities, such as skiing and horseback riding, were engaged in by fewer people. All three water activities studied: swimming, boating and fishing ranked high.

The most comprehensive national survey of particular recreation activities is the United States' 1960 National Survey of Fishing and Hunting, 1960 (23). The main objective was to characterize hunters and fishermen and to estimate the amount of their expenditures and how frequently they engaged in these two activities.

Projections of United States' future demand to 1976 and 2000 were presented in ORRRC Study Report Number 26. These projections were primarily based on the summer June

to August, 1960 National Recreation Survey data and were depicted through graphs in Outdoor Recreation for America (24:47).

The Michigan Outdoor Recreation Demand Study (25), informally called Project '80, was an eighteen month investigation which began in November, 1963. The overall objective was to predict the amount, kind and spatial distribution of outdoor recreation demand in the State of Michigan to the year 1980.

Besides Michigan, the states of California, Oregon, Texas, and Wisconsin all have demand analysis studies completed. As of May, 1966, 49 States and four Territorial Governments had prepared initial versions of State outdoor recreation plans, and submitted them to the Bureau of Outdoor Recreation in order to qualify for participation in the United States' Land and Water Conservation Fund Program (26:36).

Beyond the United States, only one other country has completed a nationwide study of outdoor recreation. In 1962 a Royal Commission was appointed to review the resources for outdoor recreation in Sweden (27). The study, which took the form of a field survey, was concentrated upon the following main types of variables: (1) the objectives of leisure-time activities; (2) the magnitude and objectives of outdoor recreation; (3) the motives, aspirations, and evaluations with regard to outdoor recreation; (4) the facilities for

nonurban outdoor recreation; (5) vacations in 1963 and plans for vacations in 1964; (6) the present forms of summer housing.

The analysis of the result of the field survey was undertaken against the background of the following variables: By individuals: age, sex, place of permanent residence, income and type of family with a view to marital status, age and age of children. By income: age of the household head, place of permanent residence, type of permanent residence and type of income unit with a view to marital status, age, number of children, and age of children.

The survey was limited to Swedish cities and towns over 10,000 population and the survey population was confined to the age class of 18 to 65 years for that part of the survey which dealt with outdoor activities, vacation habits, etc. For the income unit, the age limits were 20 to 65 years. The individual was the survey unit for questions related to outdoor recreation, vacation habits, etc.; whereas the household constituted the survey unit for matters related to summer housing. The household unit was equivalent to the income unit.

The sample consisted of 2700 individuals which represented 2.46 million people. It was a stratified probability sample with size and geographic location of place of permanent residence as the stratification variable.

Part III: Determinants of Recreation Demand

Introduction. Recreation, as a field of research, has been somewhat confined to recent years. Prior to 1960, comprehensive statistical inquiries were rare. Clawson (28:292) states:

The available statistics were not collected for the purpose of social science research; they were often obtained as an incident to administrative actions, or to guide them, or for their current news value. It should not, therefore, be surprising that the available data are unsatisfactory for social science analysis.

This hesitancy to treat recreation scientifically is probably due to several causes. First, for many years recreation was considered as second in importance to all other phases of education. Second, because of the nature of recreation--its nonproductive, self-contained character--as distinct from economic production has resulted historically in viewing recreation as trivial or inconsequential. It is in the sense of being largely noninstrumental and nonproductive activity that recreation has been viewed as not worthy of serious study. This second factor has tended to give nutrient growth to a third; that is, the embarrassment factor of researchers with the resultant effect of shying away from studying seriously what others view as fun and pleasure. Fourth, recreation as a field of research and study is confronted with the problems that it is difficult to define, that recreation parameters tend to be difficult to measure, and that the terminology is multifarious. These factors

additionally encouraged researchers to shy away from the study of recreation for most researchers, like most all other people, tend to accept the routes of least resistance. Fifth, the historical lack of financial assistance to recreation research has been a crippling blow to most of those who met and could have overcome the previously mentioned barriers. Gloss (29:930) further suggests that there are so many variables in the recreational situation that controlled experimentation is likely to require restrictions that would seriously limit the significance of the findings.

For these reasons plus their compound effect, comprehensive studies which have attempted to identify the determinants of recreation behavior as their prime purpose are few. Studies which have incidentally identified a determinant of recreation behavior, although more plentiful, are widely scattered throughout the social science literature. There is, therefore, no pretense that this literature review on determinants of recreation behavior is comprehensive.

Some time ago, Steiner (30:ix), noted that the changes taking place in the rapidly changing field of recreational activities in America were intimately bound up with the whole social and economic structure. This same rationale--that differences in demographic and socio-economic factors between segments of a population create varying impacts affecting variances in activity participation--was used and the methodology refined in ORRRC Study Report Numbers 19 and

20. A recent study by Owens (31) also held this view.

Sex. Sex is generally considered as one of the most important factors associated with people's differences in leisure time activities and interests (32), and in recreation activity. McCall (33:55) states:

The physical and psychological differences between men and women as well as the environmental factors of folkways and mores, probably affect differences in the nature of recreation activity of men as compared to women.

Women have distinctly lower overall participation rates than men (34:69). Women were found to engage in the more passive pursuits and men in the more water-based activities (35:93). Owens (36:52) found that the sex of the participant was highly significant in three activities--golf, fishing and hunting--and that males participated more than females in all three activities.

Age. Willis (37) in 1940 and Clarke (38) in 1956 found age as an important variable in determinations of leisure time distributions. Clarke further pointed out that with increasing age the social class associations with different uses of leisure time tended to become more pronounced.

Age has been generally considered a determinant of recreation participation. As people grow older new experiences may tend to develop new interests, increased responsibility, and physical changes through age have been advanced as reasons having effects on participation both as to type and amount. Lehman and Witty (39:8) indicated age to be the

most important causal factor of play behavior. Older subjects participated in a smaller number of activities than the younger ones; the middle fifty percent range was progressively diminished as age advanced and very few of the play curves reached their peaks beyond age 10.5 years.

Other studies have supported the view that as subjects grow older, they generally participate less, in fewer activities, in simpler activities, and that less fatiguing activities were preferred and participated in (40:128; 41:59; 42:60).

Owens (43:37) found that the curvilinear relationship between age and activity days per year was significantly better than a linear relationship for the outdoor activities of swimming, ice skating, golf, fishing, and hunting.

Education. Lundberg (44:218) cites "the school . . . from the standpoint of leisure . . . is of importance because of the habits and tastes it develops in adults of the future," and he (45:248) goes on to say:

. . . the school has been constantly expanded in its functions until today it dominates directly the leisure, as well as the work, of about one-fifth of the population and incidentally is a large factor in the recreation and leisure of the rest of the community."

Education was found to be significantly related to overall outdoor recreation participation (46:55; 47:52), but beyond this confusion and contradiction have entered the research literature. Owens advanced the finding that education of head of household was significantly related to active family participation and to participation in the

following activities: sightseeing, swimming, picnicking, power boating, fishing, hunting, water skiing, ice skating, and snow skiing. McCall detailed education as being related to the passive spectator type activities of pleasure riding, and watching athletic events. McCurdy (48:631) suggested, which neither found, that a greater proportion of campers than the average citizen have completed high school. Specifically, Owens (49:56) found that participation increased almost one half an activity day per year for each additional year of formal education.

Stage of family development. Booth (50) outlined, in a study of what male industrial workers desired to participate in, that single men ranked team and dual activities higher than married men, but the latter ranked outdoor activities higher than did single men.

Owens (51:49) found that single persons living alone were lowest in overall participation and quite low in the active, passive, and water based categories of participation. Single persons living alone were below average participation in all outdoor activities except water skiing, skin diving, snow skiing, and canoeing-rowing-sailing.

Family recreation patterns are said to be associated with family stage. Owens (52:51) showed how overall family participation was related to the normal family life-cycle of the particular population studied. Participation declined from the time of marriage to part way through the

child-bearing stage. He suggested that the low point was reached after three to six years of marriage. There was then a rapid increase until participation reached its peak after about twelve to sixteen years when some of the children were over ten years of age. From this point, there was a gradual decline until the family was broken up by death.

Place of residence. Owens (53:56) found overall family participation, family participation in active outdoor activities, and family participation in passive outdoor pursuits were significantly related to place of residence. For activities, picnicking, swimming, power boating, hunting, and water skiing were related to this factor. Categories of residence used were rural nonfarm, rural farm and urban. He stated that in most activities and in the three categories of family participation, urban people participated most, rural farm families participated least and rural nonfarm participation was somewhere between. Hunting was the only activity significantly related to residence in which rural farm people participated more than rural nonfarm and urban people. McCurdy (54:631) reporting camping only, concurs with Owens' study for he stated: "A greater proportion of campers than the average citizen live in an urban area."

Occupation. Lundberg (55) and his associates observed the relationship between occupation and the amount and type of leisure and concluded that occupation was a significant factor. More recent studies (56, 57, 58) have found

significant differences between occupational prestige and leisure behavior; the latter two studies while holding social class constant. Gerstl (59:68) states:

Although the account presented in this paper has emphasized the explanatory links between occupational factors and other types of behavior, one must be cautious of the tendency toward occupational determinism. Certainly such factors as national fads and fashions are most important in the analysis of leisure. But even if . . . , the concentration or involvement with such activity in particular portions of the population still needs to be explained. The consideration of occupational milieu is crucial for this purpose, for it involves an individual's major connection with the larger social structure of which he is a part through the division of labor.

Owens (60:38) found that occupation of head of household was closely related to passive family participation and with six activities--picnicking, power boating, fishing, hunting, camping, and water skiing. Occupation was also significantly related to sightseeing, golf, horseback riding, and ice skating and to overall family participation, active family participation and water-based family participation.

Farm occupations have been found to have least participation in all outdoor recreation activities (61:38; 62:68). Families of professional people, officials and managers, although slightly below average in overall participation, were well below average in passive pursuits. They were found to be above average in active and water-based activities (63:44).

Income. Kelly (64) in 1926, while examining the recreation activities of one thousand industrial workers in

relation to the wage factor, found that income was important in the choice of activities, particularly in its relation to participation in the cultural recreational activities.

Lundberg and associates (65:187-188) in their 1934 attempt to relate the use of leisure time to socio-economic variables stated:

The leisure of the suburban family is conditioned more by the income of the family than by any other factor Just as the lack of money curtails the leisure of the family with the low income and determines how it shall be used, so the possession of money influences the family with the high income.

A more recent study, the Michigan Outdoor Recreation Survey (66:78), showed that outdoor recreation activity increased with income much less than proportionately and that it had an important selective influence. This selective influence referred to the research finding that as income increased, some types of recreation activity increased in demand far greater than others. This same selective influence can be observed in the United States' National Recreation Survey data (67).

Overall outdoor recreation participation increases at a decreasing rate from family income levels of \$1,000 to \$20,000 per year (68:54; 69:93). The Survey Research Center of the University of Michigan (70:10) found that after allowance was made for the influence of other characteristics, participation increased with income from the lowest to the \$7,500 to \$10,000 income group and then commenced a general but slight decline. Owens (71:55) found that both

active and water-based family participation increased with income throughout the \$1,000 to \$20,000 range, even more than was the case for overall participation, although at a slightly decreasing rate. The United States' National Recreation Survey (72:93), studying the individual and not the family, showed that income did not influence participation in the active pursuits. To a lesser extent, passive participation has been found to follow a pattern similar to that of overall participation (73:93; 74:54) and backwoods recreation was observed to be influenced by income (75:93).

Owens' study included finding a highly significant relationship between family income and the two activities sightseeing and swimming and a significant relationship to golf and hunting. Participation in golf was observed to increase with family income at an increasing rate throughout the \$1,000 to \$20,000 income range studied (76:54). Sports participation has been observed to rise significantly with income (77:34). McCurdy (78:631), in reviewing the pertinent camping research literature, expressed the view that a greater proportion of campers than the average citizen receive a high income.

Social class. Clark (79) indicated a dramatic relationship between certain social classes and the use of leisure time. A study by White (80:145), which deserves closer attention, stated the hypothesis ". . . that the use of leisure is a function of class position and that the

differentiation increases with age up to maturity." White (81:150) concluded by saying, "It is clear that the tendency to choose leisure activities on the grounds of membership in a particular social class begins in adolescence and becomes more pronounced in maturity."

This conclusion was supported in a recent study by Lueschen (82) in Germany, in which social stratification among sportsmen was taken to test the hypothesis that leisure behavior, at least in certain areas, was bound to social class. Lueschen concluded that it was.

Leisure-time factors. Leisure-time factors studied by Owens as to their order of importance to participation were: (1) time usually spent going to and from work by head of household; (2) nonwork time usually committed to school, church or civic activities by head; (3) length of work week in hours of head, and (4) number of days of paid vacation of head of household.

Owens (83:60) found that the factor 'time spent going to and from work by head of household' was significantly related to more activities and categories of family participation than any of the other leisure-time factors. The relationship found was inverse in all instances; the more time required for travel to and from work by household head, the lower was outdoor recreation participation. Owens points out that the effect of travel time on participation was, although highly significant, not of great magnitude.

Mobility factor. Independent variables used to date to investigate the effects of mobility on participation in outdoor recreation have been: (1) number of automobiles, (2) effects of traffic conditions on participation, and (3) effects of road conditions on participation.

Number of automobiles has been found to be highly significant and positively related to only two activities--power boating and water skiing--and positively related to only overall family participation (84:64).

Health. This factor has generally been collected in the form of a qualitative respondent response of good, fair, or poor and/or yes-no response regarding physical impairments.

Owens (85:58) concluded that health of spouse to be was slightly more important than health of head of household according to the number of activities to which they were significantly related plus the three categories of family participation he studied and highly significant to family participation in water-based activities. Analysis of United States National Recreation Survey data reflect a general tendency for participation to decline as health is rated poorer (86:17). One exception to this general trend was noted in the activity walking for pleasure for males 65 years of age and over. In this particular case, rate of participation leveled off ". . . across these health classes, suggesting that some people in poor health walk a great deal" (87:48).

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CHAPTER III

METHODS AND PROCEDURES

General Procedure

This section consists of six parts subdivided for clarity.

Description of study area. Edmonton, the capital of the Province of Alberta, Canada, has an elevation of 2,184 feet above sea level and is situated within the north-western sector of the Canadian prairie, on the North Saskatchewan River, some 330 miles north from the international boundary between the United States and Canada. The North Saskatchewan River, which bisects the Edmonton region and the City of Edmonton itself, has long served as a division politically, economically, and physically. The river and its associated valley lands, from both the regional and city planning views, have been considered the backbone--a central spine--to which all metropolitan and area planning can be related. Edmonton urban development has, therefore, resulted in a lineal form which varies in degrees of density and width.

As of January 1st, 1965, the population of the City of Edmonton was 357,696 persons. The population is predominantly English speaking (71.4%) with the majority (75.5%) Canadian born (1:7). Edmonton was the second fastest growing city in Canada (91% increase) during the

1951-1961 national census period (2:64) and as a result is suffering rapid growth pains. Basic industries of the City are petroleum and chemical, meat processing and wholesale commerce oriented about agriculture.

The total area reserved for parks in the City of Edmonton amounted to 4,812.45 acres or 8.79 percent of the total city area, January, 1965 (3:57).

Survey method. An Edmonton adult population residence-based survey of participation in outdoor recreation and preferences associated with it was conducted during the period June 1st to July 13th, 1966. Since it was totally impractical to make a survey of the entire adult population for which information was desired, it was decided that the survey would be 'residence-based' in order to include both participants and nonparticipants.

The survey consisted of a mailed, self-administerable questionnaire technique comprising nonmonetary incentives to participate and an introductory letter of explanation and motivation. The introductory letter was mailed to the chosen respondents approximately one week prior to the mailing (June 1st, 1966) of the questionnaires. In addition to the questionnaires, stamped and formal printed self-addressed return envelopes were provided. Two weeks after the first mailing, the nonresponse category--86 percent of the sample--received a second letter requesting the completion and return of their questionnaire. This second letter

reemphasized, as the first had stated, the important self-role that the respondent played in this survey. In case the respondent desired additional information, needed assistance, or had lost the questionnaire, the second letter, similar to the first, made mention of a procedure which the respondent could follow to secure a second or to obtain the information or help desired. See Appendix A for both the introductory letter and first stage follow-up letter used.

Two weeks later (June 29th, 1966) a second stage follow-up commenced on the then still remaining nonrespondents. This nonresponse category consisted of 66 percent of the chosen sample. This follow-up consisted of a personal home phone call, by the author, to those respondents having a phone and a personal home visit to most of those not having a phone. Those who were absent at the time of the first home visit were not revisited; those failing to answer the first, second, or third phone call made during three consecutive days were not recalled. Any questionnaires which were received after the deadline date of July 31st--six weeks after the commencement of the survey--were not included in this study.

The second stage follow-up had favorable effect upon two types of nonrespondents, who after being personally contacted, completed and returned their questionnaires. One such group tended to be that type which continually put off or delays doing the task even though their

intentions were good. The second type could be viewed as two sub-types: (a) those who were somewhat apprehensive about giving personal information for analytical purposes, and (b) those who had left some questions unanswered and hence had not returned their questionnaires because they could not understand the reason or reasons for their inclusion in a questionnaire pertaining to outdoor recreation.

In review, then, the survey was so designed as to utilize factors previously known to improve the response rate to mailed questionnaires, to employ methods and procedures of follow-up upon the nonresponse category, and to complete the survey in a relatively short time period. The survey objective was to obtain valid and reliable outdoor recreation participation and preference data for the statistical population.

The sample. A mechanical random sample design was employed using April, 1966, voter registration data records of the City of Edmonton. This registration contained the most up-to-date record of persons living within the legal boundaries of the City of Edmonton who were twenty-one years of age or older. Respondent number one was chosen randomly and then every 460th name in the records from the preceding selected name was included in the sample. Initial sample size was 452 adult persons of which 210 returned completed questionnaires. Voter registration names, as collected by the city agency, were by address and were recorded by address, not alphabetically.

The mail questionnaire. A self-administerable questionnaire was designed to obtain certain data on participation, preferences, socio-economic and demographic characteristics, and on distances travelled to outdoor recreation areas (see Appendix B). The 1960-61 National Recreation Survey of the United States suggested that the travel occasion technique seemed to be a superior one for stimulating a respondent's memory. Hence, the questionnaire served to stimulate the memory of the respondent by getting at activity participation in relation to vacations, trips, and recreation outings undertaken during the quarter-period in question. That is, the respondent was questioned about each vacation, overnight trip, or one-day outing he had taken during the June to August, 1965 summer quarter-period. With regard to each of these occasions, he was asked to indicate any outdoor recreation activities in which he had engaged and the number of days engaged.

Questions about destinations, distances traveled, mode of travel, and characteristics of companions served to stimulate the memory of a respondent about activities engaged in during the travel occasion, thereby improving the reliability of the survey data in addition to fulfilling an objective of this study.

Further, the questionnaire utilized the seasonal approach primarily because of the belief that the quarter-period enabled the respondent to focus on his or her

limited three month period and thereby facilitate greater and more accurate recall than would have been the case had the respondent been forced to consider an entire year's period at one time. The quarter-period approach, as used, was also considered more effective in avoiding respondent boredom and its consequence of carelessness in response. In addition, the quarter-periods approximated the four seasons, each of which has outdoor recreation activities in the Edmonton area peculiar to it.

Each respondent had one and only one three month period to consider in answering his or her particular questionnaire. This quarter-period was determined through the procedure of randomly assigning each respondent to one of four sub-samples and then, in turn, randomizing the four sub-samples to a particular quarter-period. All respondents within a particular sub-sample and a particular quarter-period, then became 'designated' respondents and their respective questionnaires were designed accordingly. To help facilitate recall plus act as a guarantee that a respondent consider only his 'designated' quarter-period, a calendar card of the seasonal three-month period in question was enclosed within the first page of each questionnaire (see Appendix B, page 150).

The questionnaire was pretested intermittently during a three-month period, January to March, 1966, but not under exact testing conditions. The pretest did give indications

of what parts of the questionnaire were ambiguous or difficult to answer and helped the investigator to make improvements in the data collection instrument.

Activity scale construction. The activity scale measured quantifications of participation per respondent. From this activity scale an 'activity score' was computed for each respondent by assigning a value to whether participation in outdoor recreation was referred to as one of the respondent's hobbies or not, the number of outdoor recreation activities engaged in during the quarter-period, and whether such participation occurred less than three times, three to four times, or more than four times. Each respondent was given a score of one for each of the twenty-five activities engaged in less than three times, a score of two for three or four engagements, and a score of three for each activity engaged in more than four times in the quarter-period. In addition, a score of three was added if the respondent had previously mentioned one of the twenty-five activities in response to the open-ended question "How did you usually spend most of your leisure time?" and a score of six was added if the respondent had mentioned two or more of these activities. This was based on the supposition that such activities were particularly important to the respondent and occupied a considerable part of his leisure time. Thus a respondent who said that he went fishing more than four times in a season scored three points,

while the one who also mentioned fishing as a major leisure time pursuit scored six points. It was decided to limit the addition for such mentions to a maximum of six points, since mentioning many hobbies may imply merely a predisposition to give long and complete written answers. Activity scores therefore had a possible range from zero through to eighty-one and represented the measure used for combining outdoor recreation activity participation and preference into one measure.

Metropolitanism scale construction. A three-by-four classification table was developed as a measure of the independent variable 'degree of metropolitanism'. Two independent variables, distance zone from city centre and generations as urban dweller, were employed to develop this table. The variable 'distance zone from city centre' was subdivided into the following areas: city centre, intermediate, and suburban. The three residential concentric distance zones were developed using two mile additive radial intervals commencing from the heart of Edmonton at 101st Street and Jasper Avenue.

The second variable used 'consecutive generations as urban dweller' was subdivided as to first, second, third and subsequent generations within the respondent's family tree of consecutive urban living. Table I, below, was the measure of the factor 'metropolitanism'. The larger the

numerical value the greater the degree of metropolitanism as a way of life.

TABLE I

CLASSIFICATION TABLE: DEGREES OF METROPOLITANISM

Residential Distance Zone			Generations in Family Tree as Urban Dweller			
			1	2	3	4+
City Centre Area	0 - 2 Miles	3	4	5	6	7
Intermediate Area	2 - 4 Miles	2	3	4	5	6
Suburban Area	4 - 6 Miles	1	2	3	4	5

Tabulation and Analysis

The schedules were checked, coded, and edited as soon as possible after receiving in the mail. In cases where an answer was omitted, an oversight was assumed and the respondent was requested by phone to commit himself on that question. Respondent names and addresses were on the questionnaire and many furnished their phone numbers. A total of 212 questionnaires were processed in this fashion between June 1st and July 13th, 1966. Although the questionnaires were designed to be mostly self-coding, questionnaire return date, residential distance zone codes, activity

scores and planning indices were necessary or needed computation.

As the questionnaire data was transformed into desired form, each was transferred to a summary sheet to facilitate handling and the consolidation of data. Information from the data summary sheets was punched onto IBM data cards (see Appendix C for IBM punching instructions).

Machine tabulation and analysis was primarily by IBM 1620 although some summarization was done by sorters and tabulators. Data from printouts were, in most cases, transferred to worksheets before being prepared in tabular form.

The first step in the analysis was to estimate the current demand of the Edmonton adult population for outdoor recreation. This required consideration of two major elements: (a) actual participation in a particular activity, and (b) the activities in which they would like to engage but can't due to recreation facilities overcrowded, inadequate or too distant. The evaluation of current demand considered both of these elements as shown in Figure 1.

It was important, from the planning viewpoint, to obtain information about travel habits and patterns of the Edmonton population. The distance that people of this population are willing to travel for certain kinds of outdoor recreation are indicative of the value they place on it relative to their socio-economic potentials. This

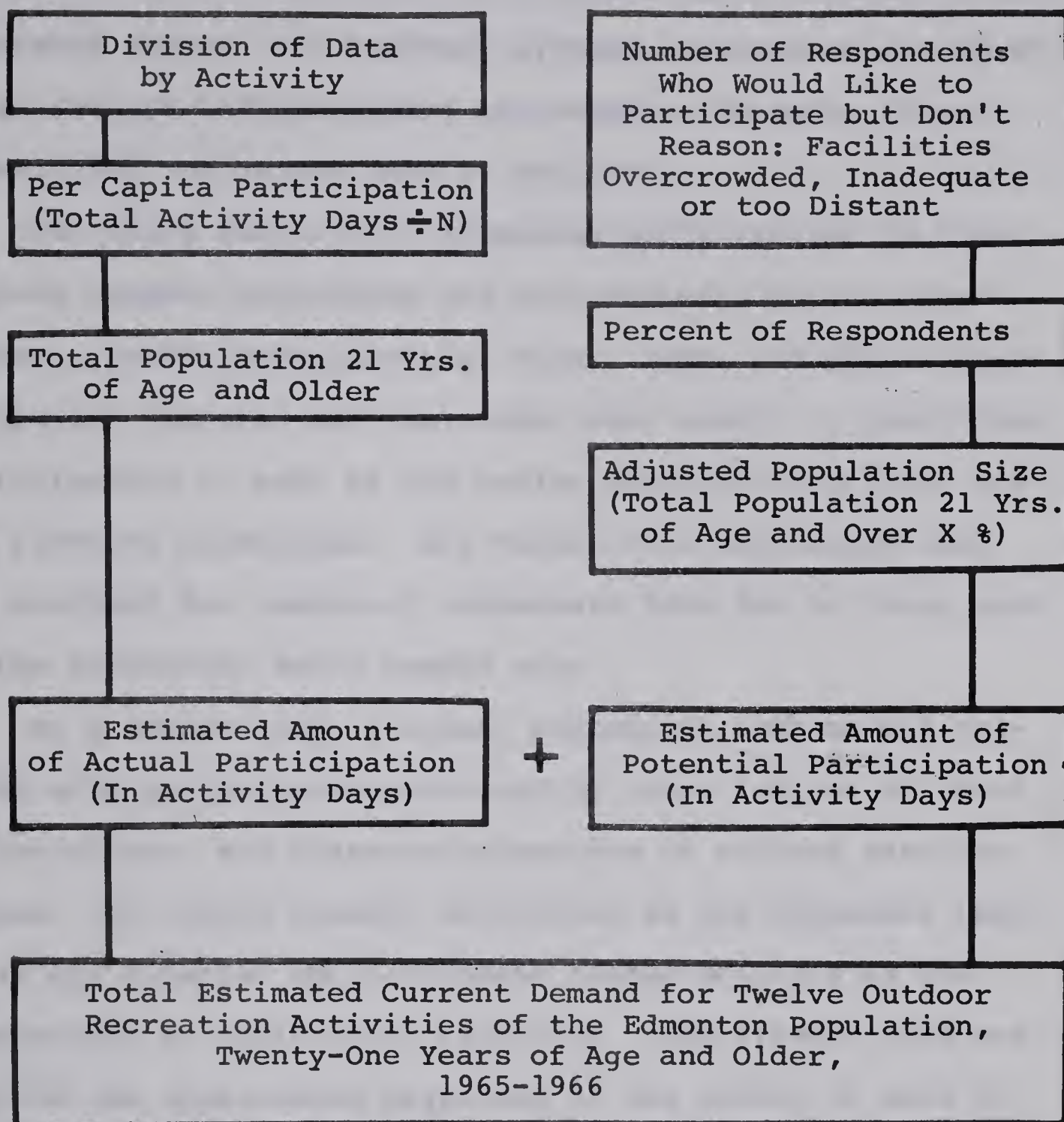


FIGURE I

METHODOLOGICAL AND PROCEDURAL FLOW CHART FOR THE
ESTIMATION OF CURRENT DEMAND OF TWELVE SELECTED
OUTDOOR RECREATION ACTIVITIES BY THE EDMONTON
ADULT POPULATION, 1965-1966

information was collected and analyzed, then, because of its essential nature to a regional systems analysis of the inter-relationships between demand and supply. As such, it so constituted the second step in analysis.

The third step was to summarize participation in the various outdoor activities and the various planning categories. Number participating, total, mean, and percent participation measures and rank order were useful in describing participation in each of the twelve selected activities and six planning categories. All twenty-five activities were not analyzed for reason of inadequate data due in large part to the relatively small sample size.

As a fourth step, a linear regression problem was prepared with participation measured by three indices of total participation, six planning categories of various participation, and twelve outdoor activities as the dependent variables and selected socio-economic characteristics as the independent or explanatory variables. The attempt here was to find the approximate magnitude of the effect of each of the seven selected independent variables on total participation in outdoor recreation, on selected outdoor activities participated in, and on the various recreation planning categories constructed. By way of example, the linear regression analysis estimated the separate effects upon activity score--a measure of an individual's total participation--as of age, own education, head's education (in female

analysis only), generations urban, residential distance zone from city center, family income, and degree of metropolitanism. In order to control the interaction effects between sex and the seven explanatory variables and since the effect of some of the explanatory variables were expected to differ between sexes it was decided to run the analysis separately for males and females.

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CHAPTER IV

RESULTS AND DISCUSSION: SIGNIFICANT FACTORS AFFECTING PARTICIPATION IN OUTDOOR RECREATION

The twelve selected outdoor recreation activities studied were:

Playing Outdoor Games or Sports	Attending Outdoor Sports Events
Fishing	Sightseeing
Boating	Driving for Pleasure
Swimming	Picnicking
Hunting	Ice Skating
Camping	Sledding or Tobogganing

For definitions of the above activities, see Chapter I, pages 19 to 22.

In line with the first objective of this study, Figure 2 contains the derivation of the estimate of current demand for these twelve selected outdoor activities of the Edmonton adult population, 1965-66. Per capita participation rates per activity were used in the derivation of this estimate. The total estimated current demand was 3,881,556 activity days.

In addition to the twelve outdoor activities, three indices of total individual participation were developed. They were:

Activity score.

Total amount of participation in activity days.

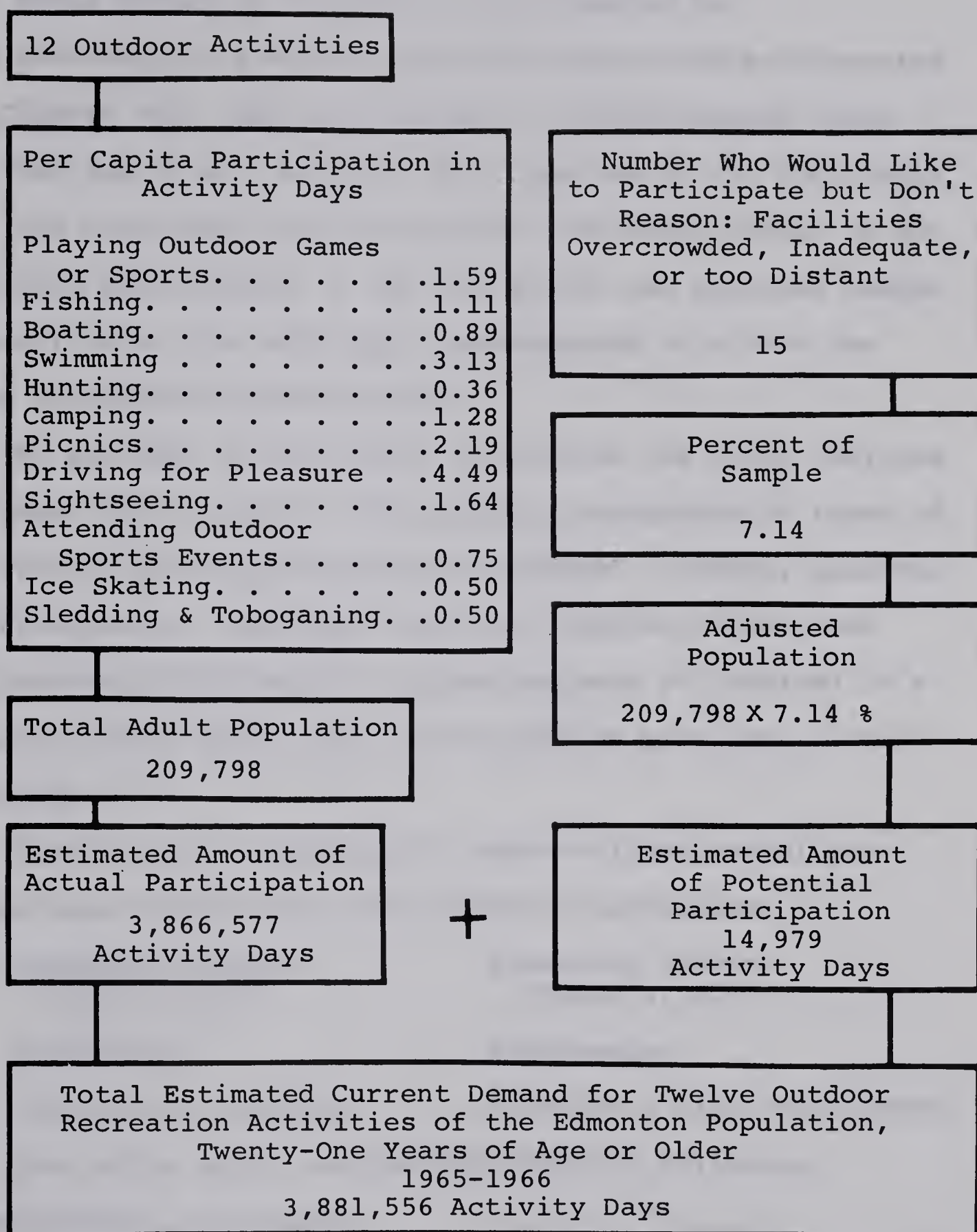


FIGURE 2

DATA FLOW CHART FOR THE
ESTIMATION OF CURRENT DEMAND OF TWELVE SELECTED
OUTDOOR RECREATION ACTIVITIES BY THE EDMONTON
ADULT POPULATION, 1965-66

Total number of activities participated in.

The individual's activity score was calculated as discussed in Chapter III. The total amount of participation index was the sum of all activity days reported by the individual for his designated quarter-period. The total number of activities participated in was the sum of the reported number of activities the individual participated in within the same designated quarter-period.

In addition to the twelve activities and three indices of total participation, six planning categories or types of individual participation were considered. Active, passive, water-oriented, high-cost facility, urban-oriented, and regional-oriented outdoor recreation were all derived in a similar manner using only the activities pertinent to each category.

Scores for an individual's passive (landlocked) pursuits were derived from the following activities:

Attending Outdoor
Sports Events

Attending Outdoor
Concerts, etc.

Picnicking

Sightseeing

Driving for Pleasure

Wildlife & Bird Photography

The active score was derived from the following

(landlocked) activities:

Playing Outdoor Games
or Sports

Mountain Climbing

Bicycling

Ice Skating

Horseback Riding

Snow Skiing

Hunting

Snowshoeing

Hiking

Sledding & Tobogganing

The water-oriented score was derived from the following activities:

Fishing

Other Boating

Canoeing

Swimming

Sailing

Water Skiing

The high-cost facility score was derived from the following three activities:

Swimming

Golf

Snow Skiing

The urban-oriented score was derived from the following activities:

Attending Outdoor
Sports Events

Attending Outdoor
Concerts, etc.

Playing Outdoor Games
or Sports

Walking for Pleasure

Swimming--Pool Only

Ice Skating

The regional-oriented score was obtained from the following activities:

Swimming--Lake, Pond,
Stream Only

Wildlife & Bird Photography

Fishing

Hunting

Canoeing

Camping

Sailing

Mountain Climbing

Other Boating

Hiking

Water Skiing

Snow Skiing

Snowshoeing

These planning categories are not mutually exclusive nor do they include all twenty-five activities.

Categorization of activities was done in an attempt to isolate differences in characteristics of participants in each of the six planning categories. This technique has been used by both Proctor (1:6) and Owens (2:28). Proctor utilized five categories--physically active recreation of youth, winter sports, water sports, backwoods recreation, and passive outdoor pursuits; whereas Owens' used three--active, passive, and water-based categories. Proctor's groupings were mutually exclusive with regard to the outdoor activities included in each category; Owens' groupings were not mutually exclusive since four of fourteen activities appeared in more than one category.

The total number of persons participating in each of the twelve outdoor activities and six planning categories was found, as was also the total amount of participation in each of the activities and planning categories. All findings are presented in Table II. In Table II, the twelve activities and six planning categories are ranked, in column 3, according to the number participating and, in column 5, according to the total participation in each activity and planning category. The total amount of participation in activity days--column 4--for each of the twelve outdoor activities are presented in Figure 3. Also, the percent of persons participating in each activity and

planning category was calculated, presented in column 2, Table II and rank-ordered in Figure 4.

Of the first six rank-ordered activities in column 3, Table II, only one activity--fishing--does not appear in the first six of the rank-ordered total participation activities in column 5. This same observation may be made between Figure 3 and Figure 4. Fishing ranks seventh in column 5, Table II, or Figure 3. This ranked difference in the first six activities is probably due to fishing being a popular activity but one in which people do not participate for as lengthy a period as in camping. In addition, within the first six activities, picnicking, although it ranks second in the number or percent participating, is displaced by swimming in the rank-ordered total amount of participation. Swimming appears to be an activity in which fewer people take part, but those who do, participate often. These same reasons for differences in rank position might be applied to other activities or to the planning categories found to have rank differences, such as that rank difference between urban-based and regional-based outdoor recreation.

The findings of Table II do not provide any measure of the degree of interest in the various outdoor recreation activities of an individual since persons who participate in activities such as fishing or hunting are likely more avidly involved than the more numerous

TABLE II

RANK ORDERS AS TO NUMBER PARTICIPATING AND TOTAL PARTICIPATION PLUS PERCENT OF PERSONS PARTICIPATING IN TWELVE OUTDOOR RECREATION ACTIVITIES AND SIX PLANNING CATEGORIES

A. Outdoor Activities	Number of Persons Part'ng	Percent of Persons Part'ng N=210	Rank Order by Number Part'ng	Total Part'n in Activity days	Rank Order by Total Part'n
B. Planning Categories	Column 1	Column 2	Column 3	Column 4	Column 5
A. Outdoor Activities					
Playing outdoor games or sports.	48	22.86	5	335	5
Fishing	42	20.00	6	233	7
Boating	27	12.86	8.5	187	8
Swimming.	67	31.90	3	657	2
Hunting	12	5.75	12	76	12
Camping	27	12.86	8.5	269	6
Picnicking.	82	39.05	2	461	3
Driving for pleasure.	112	53.33	1	943	1
Sightseeing	66	31.43	4	344	4
Attending outdoor sports events.	41	19.52	7	157	9
Ice skating	20	9.52	10	105	10
Sledding & tobogganing.	19	9.05	11	105	11
B. Planning Categories					
Active.	90	42.86	3	971	4
Passive	143	68.09	1	2033	1
Water-based	61	29.05	6	836	5
High-cost facility.	67	31.90	5	563	6
Urban-based	129	61.43	2	1603	2
Regional-based.	82	39.05	4	1417	3

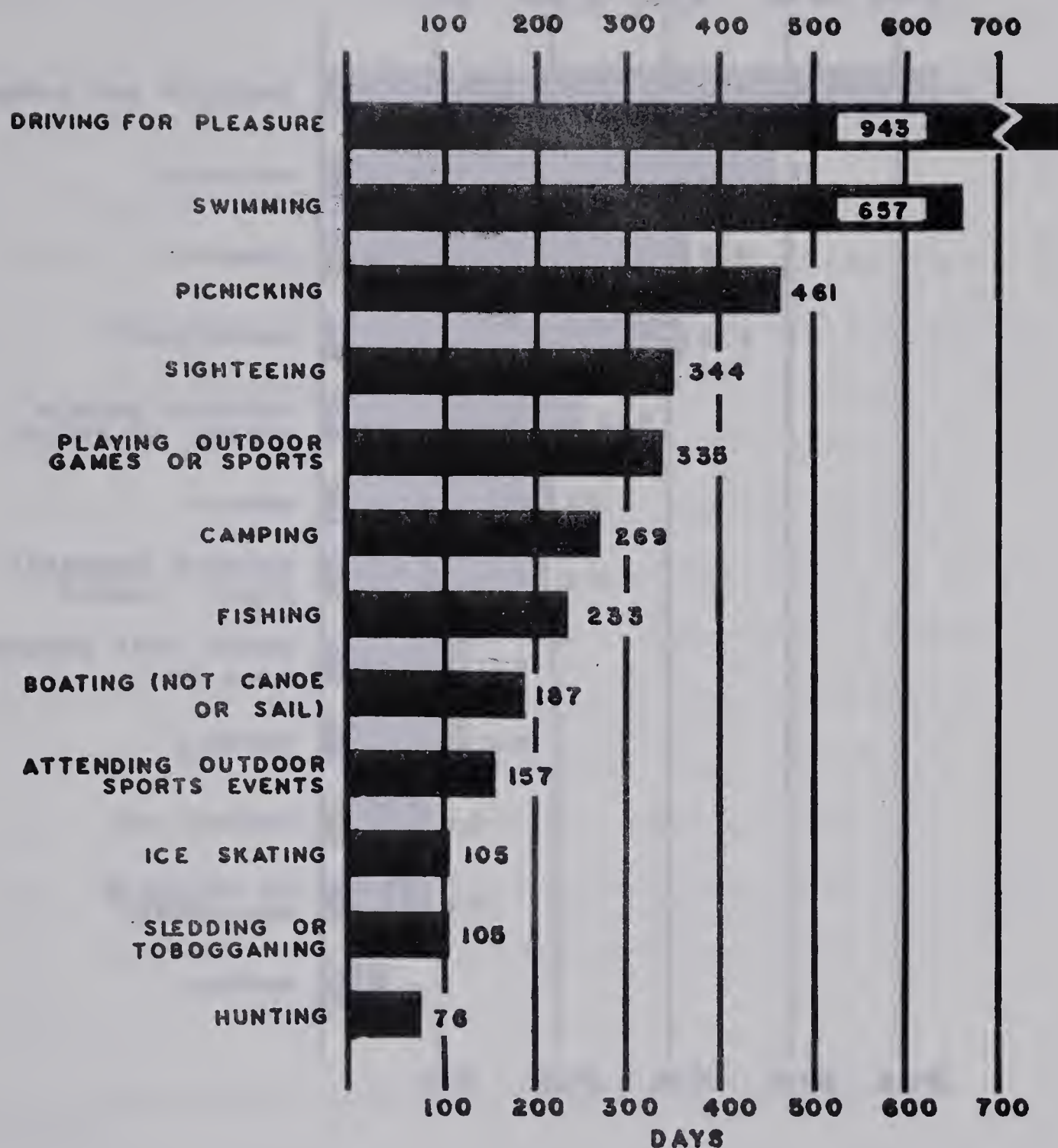


FIGURE 3

TOTAL PARTICIPATION IN TWELVE OUTDOOR RECREATION ACTIVITIES BY THE EDMONTON ADULT SAMPLE POPULATION JUNE 1, 1965 TO MAY 31 1966

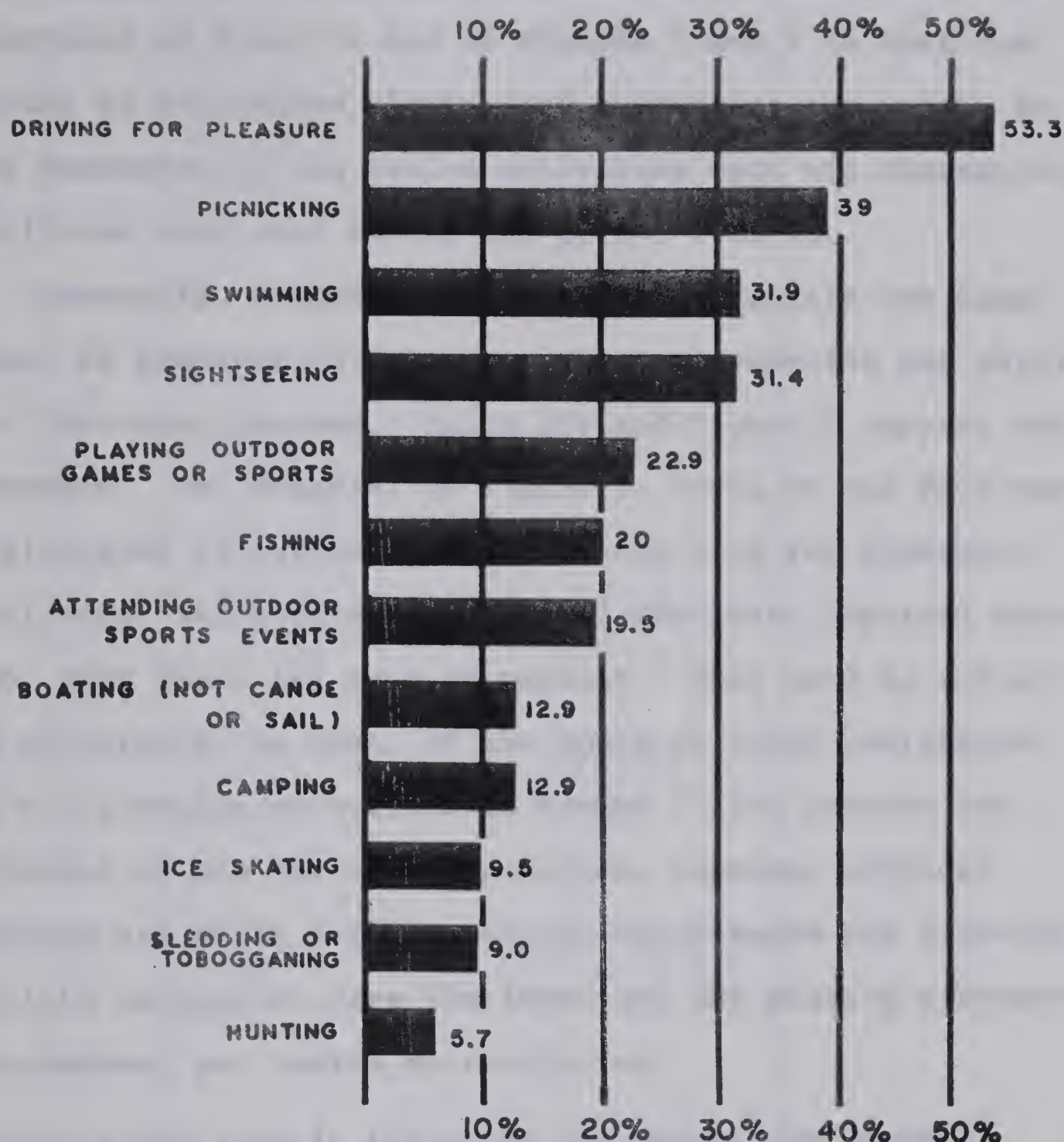


FIGURE 4

PERCENT OF THE EDMONTON ADULT SAMPLE
POPULATION PARTICIPATING IN EACH OF
TWELVE OUTDOOR RECREATION ACTIVITIES,
JUNE 1, 1965 TO MAY 31, 1966

individuals who go driving for pleasure or picnicking. The importance of Table II and of Figures 3 and 4 is that the ranking of activities within each represents the actual demand generated by the twelve activities upon the recreation facilities available during the period 1965-66.

Generally, outdoor activities which require the least amount of preparation, expense, physical exertion and skill are those most pursued. Table III and Figure 5 support this statement. For example, in Figure 5, three of the four most participated in outdoor activities--driving for pleasure, picnicking, and sightseeing--are of the least physical exertion, most unskilled type of pursuit. They tend to reflect the acceptance, by most, of the route of least resistance. The six planning categories of Figure 6 also reflect the influence of the factors preparation, expense, physical exertion and skill for the active, water-based and high-cost facility categories have the least and the passive category the greatest per capita participation.

Factors Significantly Affecting the Demand for Outdoor Recreation

The characteristics of participants included in this investigational study were selected on the basis of their: (1) assumed likelihood of being determiners of participation, (2) measurability and (3) the availability of pertinent data through survey procedures.

The seventeen hypotheses advanced in this study indicate that the following characteristics of the Edmonton

TABLE III

DAYS OF ACTIVITY PER PARTICIPANT AND PER PERSON, BY SEX, PLUS DAYS OF ACTIVITY PER CAPITA FOR TWELVE OUTDOOR RECREATION ACTIVITIES

Outdoor Activities	Activity Days per Part'nt, by Sex		Activity Days per Person, by Sex		Per Capita Part'n (total activity days ÷ N)
	Male	Female	Male	Female	
	N=104	N=106	N=104	N=106	N=210
Playing outdoor games					
or sports.	7.78	5.38	2.39	0.81	1.59
Fishing.	6.04	4.57	1.63	0.60	1.11
Boating.	5.50	8.46	0.74	1.04	0.89
Swimming	8.97	10.96	3.37	2.90	3.13
Hunting	6.33	----	0.73	----	0.36
Camping.	11.88	6.11	2.06	0.52	1.28
Picnicking	5.20	6.11	2.20	2.19	2.19
Driving for pleasure	8.05	8.79	4.34	4.64	4.49
Sightseeing.	4.00	6.67	1.38	1.89	1.64
Attending outdoor sports	4.46	2.46	1.20	0.30	0.75
Ice skating.	5.25	----	1.01	----	0.50
Sledding and tobogganing	5.52	----	1.01	----	0.50

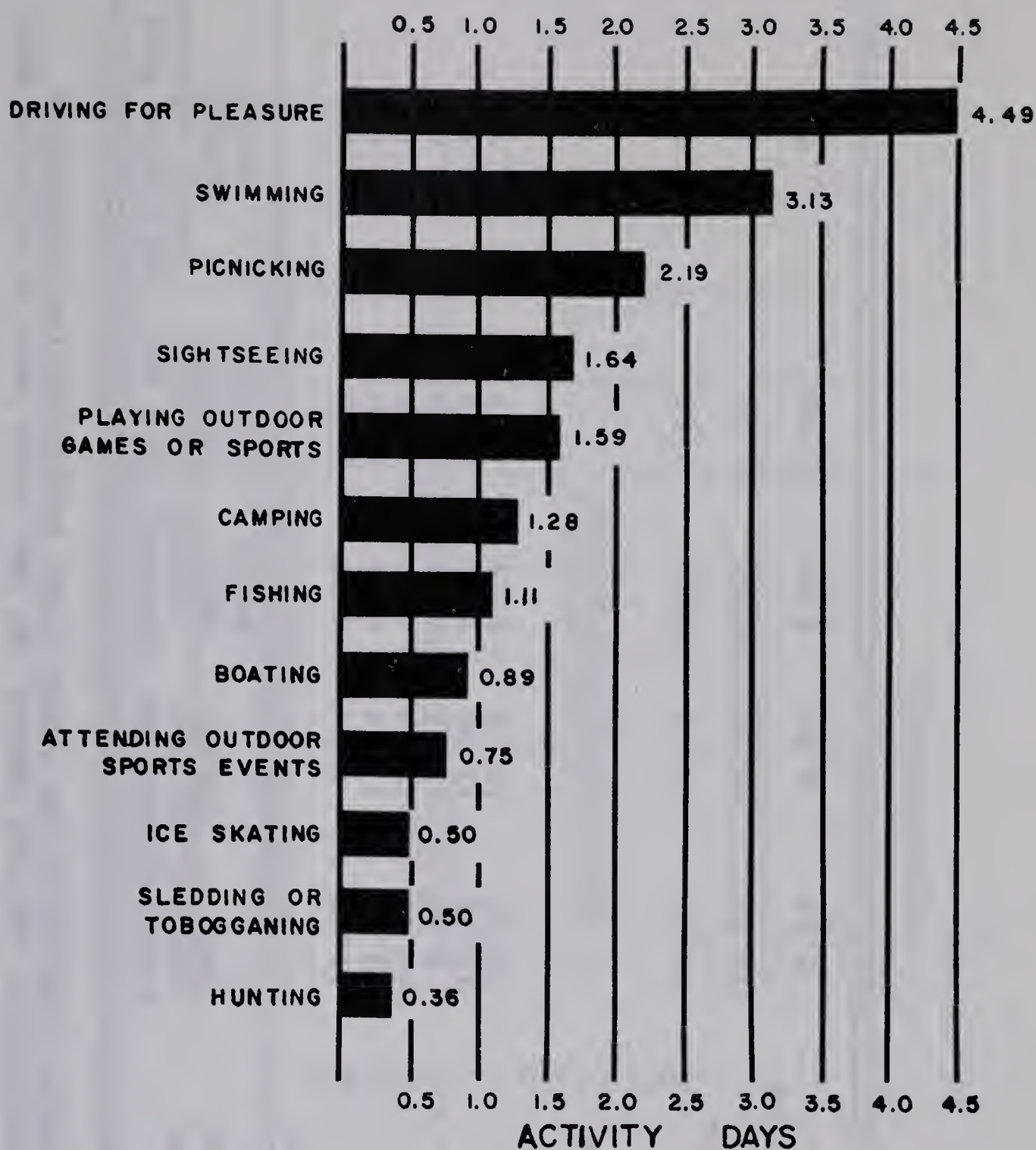


FIGURE 5

PER CAPITA PARTICIPATION, IN ACTIVITY DAYS, FOR TWELVE ACTIVITIES OF THE EDMONTON ADULT SAMPLE POPULATION, JUNE 1, 1965 TO MAY 31, 1966

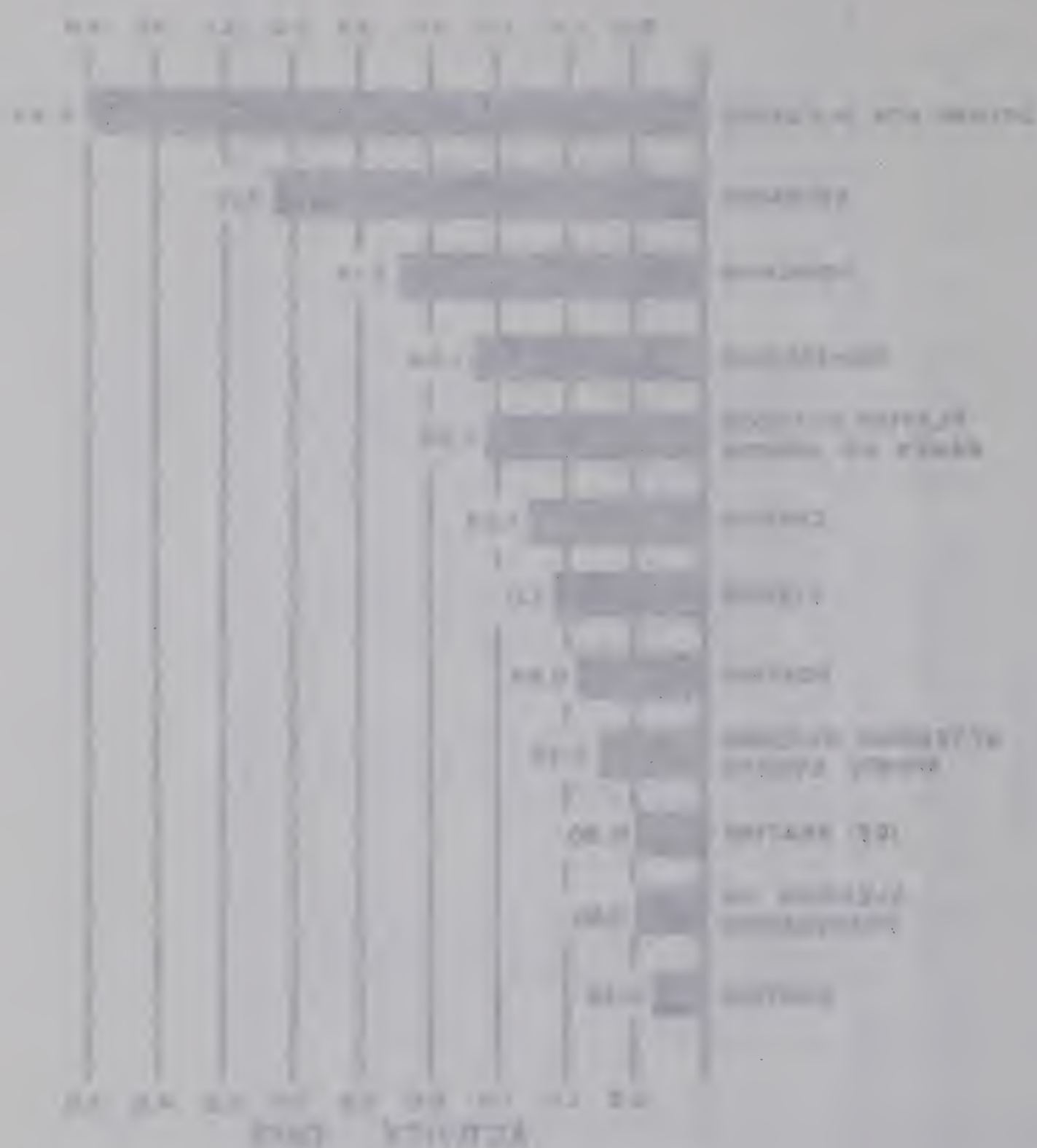


FIGURE 3

PER CAPITA PARTICIPATION IN ACTIVITY
 DAYS, FOR TWELVE ACTIVITIES OF
 THE EDMONTON ADULT SAMPLE POPULATION
 JUNE 1, 1963 TO MAY 31, 1966

TABLE IV

DAYS OF ACTIVITY PER PARTICIPANT AND PER PERSON, BY SEX, PLUS DAYS OF ACTIVITY PER CAPITA FOR SIX PLANNING CATEGORIES AND THREE TOTAL PARTICIPATION CATEGORIES

A. Planning Categories	Activity Days per Part'nt, by Sex		Activity Days per Person, by Sex		Per Capita Part'n (total activity days ÷ N)
	Male	Female	Male	Female	
B. Total Participation Indices			N=104	N=106	N=210
A. Planning Categories					
Active.	11.67	8.74	7.07	2.23	4.62
Passive	13.43	15.14	9.94	9.43	9.68
Water-based	12.63	15.48	4.62	3.36	3.98
High-cost facility.	8.64	7.91	3.74	1.64	2.68
Urban-based	13.18	11.50	9.00	6.29	7.63
Regional-based.	17.07	17.73	9.19	4.35	6.75
B. Total Participation Indices					
Activity Score.	13.31	10.92	12.03	7.52	9.75
Total amount of participation.	34.51	30.97	30.86	21.33	26.05
Total number of activities participated in	5.12	4.33	4.58	2.98	3.77

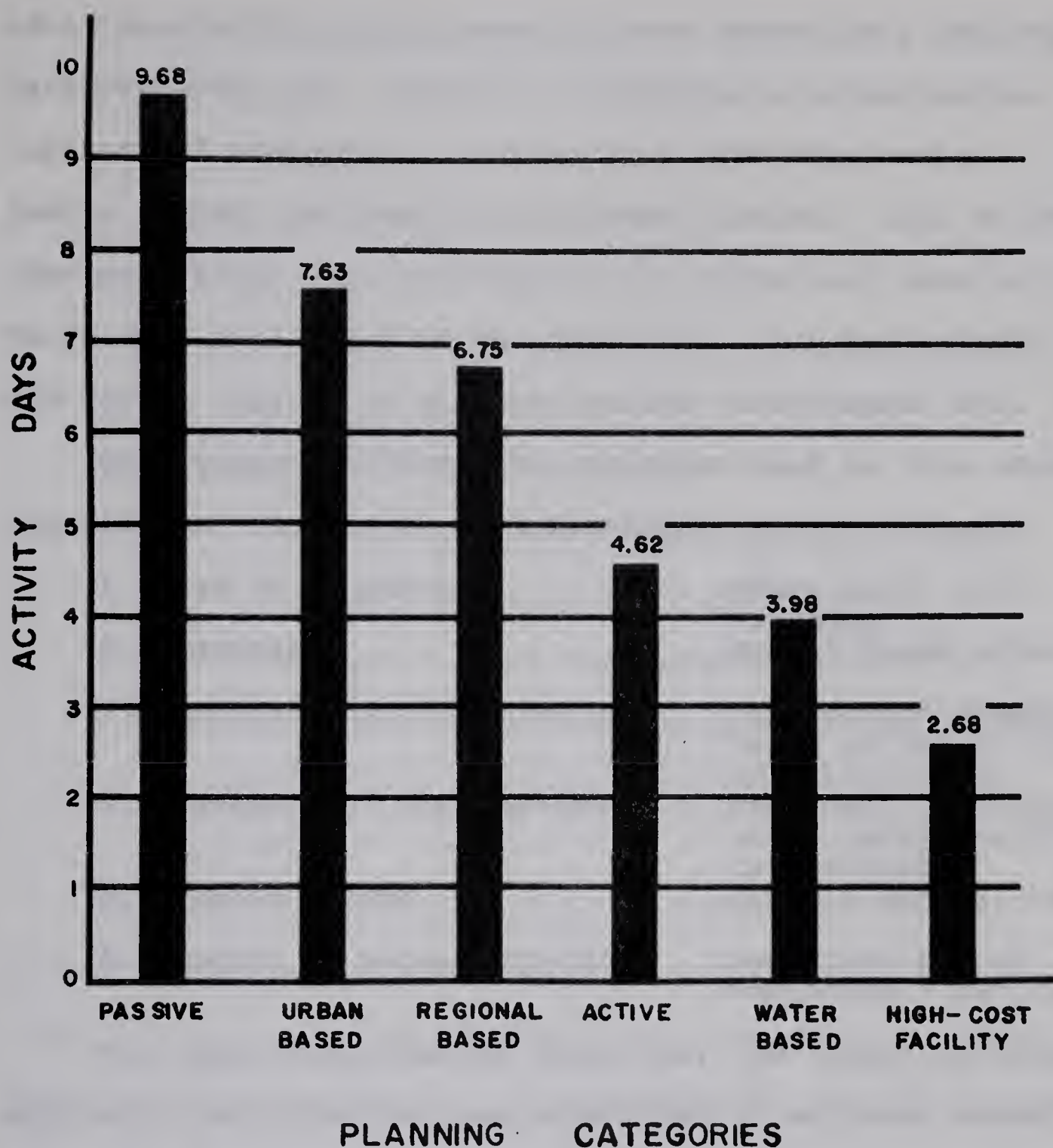


FIGURE 6

PER CAPITA PARTICIPATION, IN ACTIVITY DAYS, FOR SIX PLANNING CATEGORIES OF THE EDMONTON ADULT SAMPLE POPULATION, JUNE 1, 1965 TO MAY 31, 1966

adult population are believed to have directional bearing on participation: age, education, generations urban-dweller, residential concentric distance zone from city center, family income, and degree of metropolitanism. Data on these characteristics were gathered in the survey and their effects upon participation were measured. For explanation of the factor 'degree of metropolitanism' see Chapter III.

Quantitative independent variables used in this investigation and their unit of measurement were as follows:

1. Age of respondent.years as of last birthday.
2. Education.formal grade attained.
3. Generations urban-dweller. . .consecutive generations of urban living in family tree.
4. Residential distance-zone. . .concentric two mile zones radiating from city center.
5. Family income.dollars earned, 1965.
6. Degree of metropolitanism. . .numerical sum of variables 3 and 4.

For these quantitative variables, the linear relationship with participation was determined by multiple stepwise regression analysis, separated by the qualitative variable sex. The program used was the 80-Series Multiple Linear Regression System. In the analysis of data, the model fitted was of the general linear form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_7 X_7$$

for females, and

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_4 X_4 + \dots + \beta_7 X_7$$

for males, where:

Y is the dependent variable

X_1 is age

X_2 is own education

X_3 is head's education

X_4 is generations as urban dweller

X_5 is residential distance zone from city center

X_6 is family income

X_7 is degree of metropolitanism

β_1 to β_7 are the regression coefficients for their
respective independent variables X_1 to X_7

β_0 is a constant. It is the sample mean, \bar{Y} , or it
can be thought of as the estimate of the mean value
of Y , ignoring the values of the X independent
variables.

Only the significant linear relationships are presented in this chapter. However, it cannot be inferred that there is no relationship between the characteristics not presented and participation. In addition, in the fitted regressions contained in Tables V through X, the \hat{Y} values are estimated values; that is, the value being estimated is the mean of all Y values associated with some specified combination of values for the independent variables included in the fitted regressions. Further, since the fitted regressions are sample-based estimates, and, as such, are subject to sampling variation, it is important that they not be used without giving due consideration to sampling error. Usually,

this will mean computing confidence limits on any predictions made from the fitted regressions.

Tables V through X show the relationships between the independent variables and participation, the standard error, the coefficients of determination, and the levels of significance from the t-test from the linear regression analysis. Tables V, VII, and IX pertain to males; whereas, Tables VI, VIII, and X pertain to females.

In brief, the analysis shows (1) whether a linear relationship exists, (2) whether the relationship is direct or inverse, and (3) a measure of the relationship between the dependent and independent variables. For example, referring to Table V, the analysis shows that, for males, age is significantly and inversely correlated at the 99 percent confidence level with total number of activities participated in. In addition, R^2 , being the coefficient of determination for regressions involving more than one independent variable, represents the proportion of the variation in Y that is associated with the regression on the independent variables. In reference to the example, an $R^2=.08$ implies that 8 percent of the variation in Y (total number of activities participated in by males) is explained or accounted for by the regression on the independent variable age. This improvement in prediction takes the form $\hat{Y}=7.58-.81X_{\text{age}}$. Each of the other 43 relationships between characteristics of participants and participation, isolated

by linear regression analysis and as tabulated in Tables V to X by sex, may be interpreted in like-order statements.

From the significant relationships tabulated in Tables V to X, Tables XI and XII show the acceptance or rejection of each of the seventeen hypotheses separated by sex (34 hypotheses in total) and tabulated in the order stated in Chapter I. Each hypothesis was accepted if the t-test was significant at the 80 percent confidence level. Tables XI and XII show the confidence level for each hypothesis accepted.

A ranking of all six independent variables, in approximate order of the significance of their overall relationship to the outdoor activities, planning categories, and total participation indices, is as follows:

Education. For males, education was significantly related to total amount of participation, to high-cost facility participation and to one activity, swimming. At the 80 percent confidence level, "own education" was further related to the total number of activities participated in, to activity score, to the three planning categories of water-oriented, urban-oriented and regional-based recreation participation, and to the two activities, driving for pleasure and attending outdoor sports events. All relationships were direct but for the inverse relationship of the latter activity.

For females, "own education" was significantly related to but one index, total number of activities participated in.

TABLE V

LINEAR RELATIONSHIP AND LEVELS OF SIGNIFICANCE
BETWEEN THE INDEPENDENT VARIABLES AND THREE TOTAL
OUTDOOR RECREATION PARTICIPATION INDICES
(MALES ONLY)

Total Part'n Index & Independent Variable	Regression Equation Standard Error	R^2	C.I.	
			80%	95%
Total No. Activities & Age	$\hat{Y}=7.58-.81X_1$ Standard Error=3.25	.08		****
Total No. Activities & Age + Own Education	$\hat{Y}=3.89-.73X_1+.78X_2$ Standard Error=3.24	.10	*	
Activity Score & Age	$\hat{Y}=19.69-2.09X_1$ Standard Error=9.06	.07		****
Activity Score & Age + Own Education	$\hat{Y}=8.46-1.86X_1+2.39X_2$ Standard Error=9.01	.09	*	
Total Amount Part'n & Own Education	$\hat{Y}=65.74+22.74X_2$ Standard Error=42.99	.09		****
Total Amount Part'n & Age + Own Education	$\hat{Y}=40.19-5.2X_1+20.55X_2$ Standard Error=42.78	.10	*	

****Significant at the 99% level.

TABLE VI

LINEAR RELATIONSHIP AND LEVELS OF SIGNIFICANCE
BETWEEN THE INDEPENDENT VARIABLES AND THREE TOTAL
OUTDOOR RECREATION PARTICIPATION INDICES
(FEMALES ONLY)

Total Part'n Index & Independent Variable	Regression Equation Standard Error	R ²	C.I.	
			80%	95%
Total No. Activities & Distance Zone	$\hat{Y}=1.21+1.68X_5$ Standard Error=3.01	.10		****
Total No. Activities & Own Ed. + Distance Zone	$\hat{Y}=-5.46+1.63X_2+1.51X_5$ Standard Error=2.94	.15		*
Activity Score & Distance Zone	$\hat{Y}=1.37+5.12X_5$ Standard Error=8.46	.11		****
Activity Score & Own Ed.+ Distance Zone	$\hat{Y}=15.87+4.2X_2+4.68X_5$ Standard Error=8.30	.16		**
Total Amount Part'n & Distance Zone	$\hat{Y}=-6.83+20.29X_5$ Standard Error=37.26	.09		****
Total Amount Part'n & Own Ed.+ Distance Zone	$\hat{Y}=-68.52+15.04X_2+18.7X_5$ Standard Error=36.90	.12		*

** Significant at the 90% level

****Significant at the 99% level

TABLE VII

LINEAR RELATIONSHIP AND LEVELS OF SIGNIFICANCE
BETWEEN THE INDEPENDENT VARIABLES AND SIX
OUTDOOR RECREATION PLANNING CATEGORIES
(MALES ONLY)

Planning Categories & Independent Variable	Regression Equation Standard Error	R ²	C.I.	
			80%	95%
Active & Income	$\hat{Y}=2.46+2.23X_6$ Standard Error=10.02	.10		***
Passive & Age	$\hat{Y}=19.3-1.92X_1$ Standard Error=13.49	.03		*
Water-Oriented & Own Education	$\hat{Y}=-17.09+6.65X_2$ Standard Error=14.25	.07		*
High-Cost Facility & Own Education	$\hat{Y}=26.78+7.81X_2$ Standard Error=9.80	.19		****
High-Cost Facility & Age + Own Education	$\hat{Y}=-39.59+3.59X_1+8.51X_2$ Standard Error=9.35	.28		*
High-Cost Facility & Age + Own Ed.+D.Zone	$\hat{Y}=-35.18+3.63X_1+8.51X_2$ $-2.58X_5$ Standard Error=9.25	.31		*
Urban-Oriented & Own Education	$\hat{Y}=-5.92+4.27X_2$ Standard Error=15.25	.03		*
Regional-Oriented & Own Education	$\hat{Y}=-34.55+11.67X_2$ Standard Error=26.33	.07		**

** Significant at the 90% level

*** Significant at the 98% level

****Significant at the 99% level

TABLE VIII

LINEAR RELATIONSHIP AND LEVELS OF SIGNIFICANCE
 BETWEEN THE INDEPENDENT VARIABLES AND SIX
 OUTDOOR RECREATION PLANNING CATEGORIES
 (FEMALES ONLY)

Planning Categories & Independent Variable	Regression Equation Standard Error	R^2	C.I.	
			80%	95%
Active & Income	$\hat{Y}=1.23+1.8X_6$ Standard Error=8.11	.09	*	
Passive & Distance Zone	$\hat{Y}=-3.10+9.95X_5$ Standard Error=19.94	.08		***
Passive & Dist. Zone + Income	$\hat{Y}=-12.57+9.64X_5+2.4X_6$ Standard Error=19.80	.11	*	
Urban-Oriented & Income	$\hat{Y}=2.02+2.3X_6$ Standard Error=11.11	.08		*
Urban-Oriented & Dist. Zone + Income	$\hat{Y}=-7.03+4.98X_5+2.22X_6$ Standard Error=10.79	.15		*

***Significant at the 98% level

TABLE IX

LINEAR RELATIONSHIPS AND LEVELS OF SIGNIFICANCE
 BETWEEN THE INDEPENDENT VARIABLES AND TWELVE
 OUTDOOR RECREATION ACTIVITIES
 (MALES ONLY)

Recreation Activities & Independent Variables	Regression Equation Standard Error	R^2	C.I.	
			80%	95%
Camping & Generations Urban	$\hat{Y}=3.52+4.86X_4$ Standard Error=10.80	.13	*	
Boating & Age	$\hat{Y}=12.1-2.2X_1$ Standard Error=5.41	.22	*	
Boating & Age + Gen. Urban	$\hat{Y}=19.02-2.73X_1-2.66X_4$ Standard Error=4.91	.39	*	
Swimming & Own Education	$\hat{Y}=-14.43+5.15X_2$ Standard Error=8.25	.14		*
Fishing & Income	$\hat{Y}=10.35-1.14X_6$ Standard Error=5.10	.09	*	
Hunting & Generations Urban	$\hat{Y}=-1.61+5.02X_4$ Standard Error=5.15	.32	**	
Hunting & Gen. Urban + Income	$\hat{Y}=-7.18+4.62X_4+1.81X_6$ Standard Error=4.75	.48	*	

**Significant at the 90% level

TABLE IX (CONTINUED)

Recreation Activities & Independent Variables	Regression Equation Standard Error	R^2	C.I.	
			80%	95%
Outdoor Games or Sports & Income	$\hat{Y} = .83 + 1.61X_6$ Standard Error=7.82	.12	*	
Driving for Pleasure & Own Education	$\hat{Y} = -3.42 + 2.56X_2$ Standard Error=6.60	.05	*	
Attending Outdoor Sports Events & Own Education	$\hat{Y} = 13.07 - 1.84X_2$ Standard Error=4.09	.07	*	
Attending Outdoor Sports Events & Own Ed. + Gen. Urban	$\hat{Y} = 10.99 - 1.84X_2 + 1.05X_4$ Standard Error=4.02	.13	*	
Ice Skating & Metropolitanism	$\hat{Y} = 13.15 - 1.9X_7$ Standard Error=6.30	.11	*	
Sledding & Tobogganing & Income	$\hat{Y} = -4.57 + 2.46X_6$ Standard Error=6.33	.25		*
Picnicking & Income	$\hat{Y} = .03 + 1.35X_6$ Standard Error=3.94	.20		****

****Significant at the 99% level.

TABLE X

LINEAR RELATIONSHIPS AND LEVELS OF SIGNIFICANCE
 BETWEEN THE INDEPENDENT VARIABLES AND TWELVE
 OUTDOOR RECREATION ACTIVITIES
 (FEMALES ONLY)

Recreation Activities & Independent Variables	Regression Equation Standard Error	R^2	C.I.	
			80%	95%
Picnicking & Distance Zone	$\hat{Y} = .79 + 2.77X_5$ Standard Error=5.26	.09	**	
Outdoor Games & Sports & Income	$\hat{Y} = -2.17 + 1.86X_6$ Standard Error=4.75	.20	**	
Outdoor Games & Sports & Age + Income	$\hat{Y} = -10.95 + 1.97X_1 + 2.62X_6$ Standard Error=4.48	.34	*	
Driving for Pleasure & Income	$\hat{Y} = 2.02 + 1.58X_6$ Standard Error=9.81	.05	**	
Driving for Pleasure & Dist. Zone + Income	$\hat{Y} = -3.58 + 3.03X_5 + 1.58X_6$ Standard Error=9.73	.08	*	
Sightseeing & Distance Zone	$\hat{Y} = -4.28 + 5.3X_5$ Standard Error=8.59	.10	**	

**Significant at the 90% level.

TABLE XI
SEVENTEEN DIRECTIONAL HYPOTHESES FOR MALES, SHOWING ACCEPTANCE OR REJECTION,
NATURE OF RELATIONSHIP AND PERCENT CONFIDENCE LEVEL

Hypothesis Number	Hypothesis	Accepted or Rejected	Nature of Relationship	Percent Confidence Level
1A	Amount of Passive Participation Increases with Age	Rejected		
B	Total Number of Activities Pursued Decreases with Age	Accepted	Inverse	99%
C	Activity Score Decreases with Age	Accepted	Inverse	99%
	Total Amount of Participation Decreases with Age	Accepted	Inverse	80%
2A	Amount of Active Participation Increases with Education	Rejected		
B	Total Number of Activities Pursued Increases with Own Education	Accepted	Direct	80%
C	Activity Score Increases with Own Education	Accepted	Direct	80%
	Total Amount of Part'n Increases with Own Education	Accepted	Direct	99%
3A	Regional-based Part'n Increases with Generations Urban	Rejected		
B	Total Number of Activities Pursued Increased with Generations Urban	Rejected		
C	Activity Score Increases with Generations Urban	Rejected		

TABLE XI (CONTINUED)

Hypothesis Number	Hypothesis	Accepted or Rejected	Nature of Relationship	Percent Confidence Level
3C	Total Amount of Part'n Increases with Generations Urban	Rejected		
4A	Regional-based Participation Increases with Residential Nearness to City Center	Rejected		
B	Total No. of Activities Pursued In- creases with Residential Nearness to City Center	Rejected		
C	Activity Score Increases with Resi- dential Nearness to City Center	Rejected		
	Total Amount of Part'n Increases with Residential Nearness to City Center	Rejected		
5A	Amount of Active Part'n Increases with Family Income	Accepted	Direct	98%
	Amount of Water-based Participation Increases with Family Income	Rejected		
	Amount of High-cost Facility Part'n Increases with Family Income	Rejected		
B	Total Number of Activities Pursued Increases with Family Income	Rejected		

TABLE XI (CONTINUED)

Hypothesis Number	Hypothesis	Accepted or Rejected	Nature of Relationship	Percent Confidence Level
5C	Activity Score Increases with Family Income	Rejected		
	Total Amount of Participation Increases with Family Income	Rejected		
6A	Total Number of Activities Participated in Increases with Degree of Metropolitanism	Rejected		
B	Activity Score Increases with Degree of Metropolitanism	Rejected		
	Total Amount of Part'n Increases with Degree of Metropolitanism	Rejected		

TABLE XII

SEVENTEEN DIRECTIONAL HYPOTHESES FOR FEMALES, SHOWING ACCEPTANCE OR REJECTION,
NATURE OF RELATIONSHIP AND PERCENT CONFIDENCE LEVEL

Hypothesis Number	Hypothesis	Accepted or Rejected	Nature of Relationship	Percent Confidence Level
1A	Amount of Passive Part'n Increases with Age	Rejected		
B	Total Number of Activities Pursued Decreases with Age	Rejected		
C	Activity Score Decreases with Age	Rejected		
	Total Amount of Participation Decreases with Age	Rejected		
2A	Amount of Active Part'n Increases with Own Education	Rejected		
B	Total Number of Activities Pursued Increases with Own Education	Accepted	Direct	95%
C	Activity Score Increases with Own Education	Accepted	Direct	90%
	Total Amount of Part'n Increases with Own Education	Accepted	Direct	80%
3A	Regional-based Part'n Increases with Generations Urban	Rejected		
B	Total Number of Activities Pursued Increases with Generations Urban	Rejected		

TABLE XII (CONTINUED)

Hypothesis Number	Hypothesis	Accepted or Rejected	Nature of Relationship	Percent Confidence Level
3C	Activity Score Increases with Gener- ations Urban	Rejected		
	Total Amount of Part'n Increases with Generations Urban	Rejected		
4A	Regional-based Participation Increases with Residential Nearness to City Center	Rejected		
B	Total Number of Activities Pursued Increases with Residential Nearness to City Center	Accepted	Direct	99%
C	Activity Score Increases with Resi- dential Nearness to City Center	Accepted	Direct	99%
	Total Amount of Participation In- creases with Residential Nearness to City Center	Accepted	Direct	99%
5A	Amount of Active Part'n Increases with Family Income	Accepted	Direct	80%
	Amount of Water-based Participation Increases with Family Income	Rejected		
	Amount of High-cost Facility Part'n Increases with Family Income	Rejected		
B	Total Number of Activities Pursued Increases with Family Income	Rejected		

TABLE XII (CONTINUED)

Hypothesis Number	Hypothesis	Accepted or Rejected	Nature of Relationship	Percent Confidence Level
5C	Activity Score Increases with Family Income	Rejected		
	Total Amount of Participation Increases with Family Income	Rejected		
6A	Total Number of Activities Participated in Increases with Degree of Metropolitanism	Rejected		
B	Activity Score Increases with Degree of Metropolitanism	Rejected		
	Total Amount of Participation Increases with Degree of Metropolitanism	Rejected		

Total amount of participation and activity score were related at the 80 percent confidence level. All three relationships were direct.

The relationships between "own education" and the various total participation indices, participation planning categories and outdoor activities are reported in Tables V to X.

Surprisingly, and contrary to the general literature, education of household head was not found in this study to be significantly related to any activity, category or index of participation in outdoor recreation for females.

The measure of education was highest grade in school completed (see Chapter I).

Residential distance zone. For females, total number of activities participated in, activity score, total amount of participation and the two planning categories of passive and urban-oriented participation were significantly related to residential concentric distance zone. Three activities: picnicking, driving for pleasure and sightseeing were related to residential concentric distance zone at the 80 percent confidence level. All relationships were positive.

For males, residential concentric distance zone was inversely related at the 80 percent confidence level to but one category, that of, high-cost facility participation.

Refer to Tables VI, VIII and X for details of the residential distance zone-female participation relationships.

The measure of residential distance zone consisted of two steps: first, the establishing of three concentric two-mile zones radiating outward from city center and noting the division polling numbers falling within each zone. Second, the assignment of each respondent to a zone according to the division polling number scheme and then, assigning the distance zone to a numerical coding in which the innermost zone was scored the highest and the outermost zone the least (see Chapter I).

Family income. The relationship of family income to male participation was significantly related to the active category of participation and to two activities: picnicking and sledding and tobogganing. In addition, participation in fishing, hunting and outdoor games or sports were related at the 80 percent confidence level to family income. Four of the activities were directly related while fishing and the active category of participation were inversely related.

For females, family income was significantly related to only urban-oriented participation. At the 80 percent confidence level, active and passive pursuit participation plus two activities, outdoor games or sports and driving for pleasure were related to family income. All relationships were direct.

In this study, the major activity included in "playing outdoor games or sports" was golf. The positive

relationship observed between family income and playing outdoor games or sports for both males and females hints that golf in the Edmonton population is still the "rich man's game" and that fishing is the "poor boy's sport." Hunting has traditionally been thought of as an activity pursued generally by the poor. Owens (3:85), in his study covering 52 counties in central and southern Ohio and parts of Kentucky and West Virginia, found that hunting had a "relatively high participation rate in the lower income brackets and which steadily declines as income increases." This study tends to hint that this view is no longer true for the Edmonton population for it was found that participation in hunting increases at a decreasing rate from family income levels of \$1,000 to \$20,000 per year. That is, participation in hunting increases with family income, but much less than proportionately as shown by the decreasing but positive coefficients of income elasticity (see Figure 10).

Regression of participation on family income, if presented graphically, could give an approximation of an income-consumption curve from which income elasticities could be computed. In pursuit of this idea, what follows is an investigation limited to the effects of family income upon participation in two activities, picnicking and hunting, by the male adult population of Edmonton. The prime focus here is the development of a methodology

which has practical application to both recreation planners and public policy makers; practical application since income-consumption elasticities would show how responsive participation is to family income. In light of this potential application, it must be realized that the findings and conclusions pertaining to these two activities of picnicking and hunting apply only to the study area. The methodology developed, however, should be important for research in other activities and in other areas and the findings applicable only as other areas resemble the study area.

To provide a framework for methodological analysis and interpretation a review of consumer demand theory and elasticities theory is necessary.

Consumer demand. The purpose of consumer demand theory is to show how consumers divide their expenditures among different goods and services at different prices and at different levels of income. To study the effects of income upon consumption, Hicks (4) derived an income-consumption (IC) curve by varying the consumer's income while the price remained constant. The IC curve connects points of tangency of opportunity lines with indifference curves, as shown in Figure 7.

An indifference curve indicates all combinations of any two commodities X and Y which are of equal utility, or which are equally preferred by the consumer at a given level of total satisfaction. Indifference curves will

slope down and to the right so long as each commodity has a positive marginal rate of substitution or so long as more of each commodity is preferred to less. When indifference curves for different levels of satisfaction are constructed, the result is an indifference map. On the other hand, the opportunity line shows all possible combinations of commodity X and commodity Y which can be purchased with the consumer's given income. When this opportunity line is applied to the indifference map, the quantities of each good to be purchased for maximum satisfaction at consumers given income at the least cost combination is indicated by tangency of the opportunity line to the highest indifference curve. At this point of tangency, the ratio of the marginal utilities of both commodities is equal to the price ratio of the commodities for the indifference curve shows combinations providing equal satisfaction and the opportunity line shows all possible combinations of X and Y which can be purchased with the given income. Any deviation from the point of tangency without a change in price, income, or preference would produce a combination yielding less than maximum satisfaction.

The quantity of commodity X as well as quantities of all other goods and services, represented by money on the Y axis normally increase with an increase in income, but exceptions may occur as in the case of inferior goods. If

X were an inferior good, the IC curve would slope upward and to the left, as in Figure 8.

Elasticity. Income elasticity refers to "responsiveness" of the quantity consumed to changes in consumers income. An increase in real income (a decrease in commodity price) ordinarily results in an increase in the amount purchased. An IC curve is elastic, inelastic, or unitary, depending upon whether an increase in income increases, decreases, or leaves unchanged the quantity of a commodity consumed. If the increase in participation in an activity is greater, percentagewise, than the increase in income, the IC curve is said to be elastic for that activity. Unitary elasticity means that the percentage change in activity participation equals the percentage change in income. An inelastic situation results when the percentage change in activity participation is less than the percentage change in income.

Arc income elasticities are phrased in terms of average percentage change in quantity consumed (participation) per one percent change in income but are not necessarily descriptive of cause and effect relationships. Income elasticities should be considered as measures of change in quantity consumed associated with a proportional change in income.

Further, elasticities depend on percentage changes and not on absolute changes as does geometrical steepness

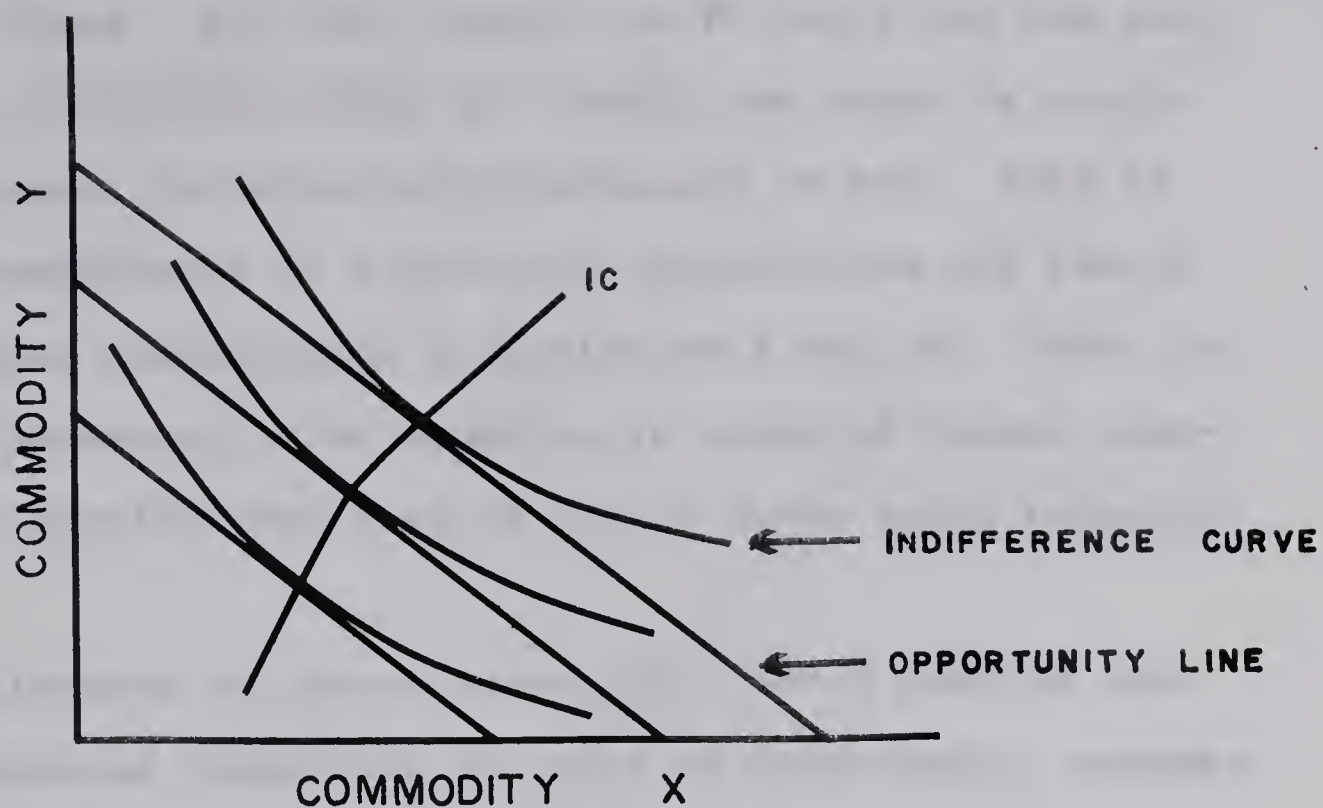


FIGURE 7

INCOME-CONSUMPTION CURVE FOR
NORMAL GOODS

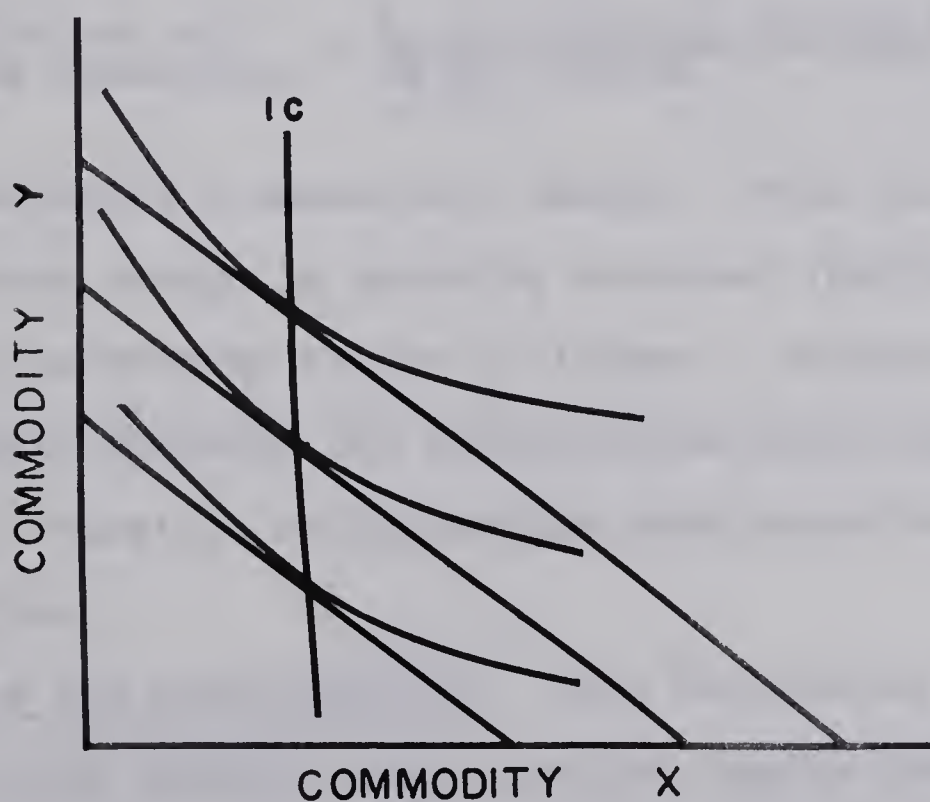


FIGURE 8

INCOME-CONSUMPTION CURVE FOR
INFERIOR GOODS

of the IC curve. For this reason, no IC curve has the same elasticity throughout; that is, though the slope is everywhere the same, the elasticity certainly is not. This is shown by coefficient of elasticity computations for family income ranges marked A and B in Figures 9 and 10. Thus, it is always necessary, when speaking in terms of income elasticity, to specify that part of the IC curve being referred to.

Coefficients of income elasticity, which provide comparable measures regardless of units of measurement, express elasticity as percentage change in quantity consumed associated with a one percent change in income. This can be expressed mathematically as:

$$(1) \quad \text{Coefficient of Income Elasticity} = \frac{\% \Delta \text{ in Quantity Consumed}}{\% \Delta \text{ in Income}} = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta I}{I}}$$

where Δ indicates a measurable change. This can be stated as percentage change in quantity consumed (participation) divided by percentage change in income. Technically, the above formula computes arc elasticities which show average income-participation relationships over specified ranges on the IC curves.

Income and participation. Data concerning participation in twelve outdoor activities and family income were analyzed to provide information on the effects of income upon participation. In this regard, Figures 9 and 10 are graphical representations of data for two of these

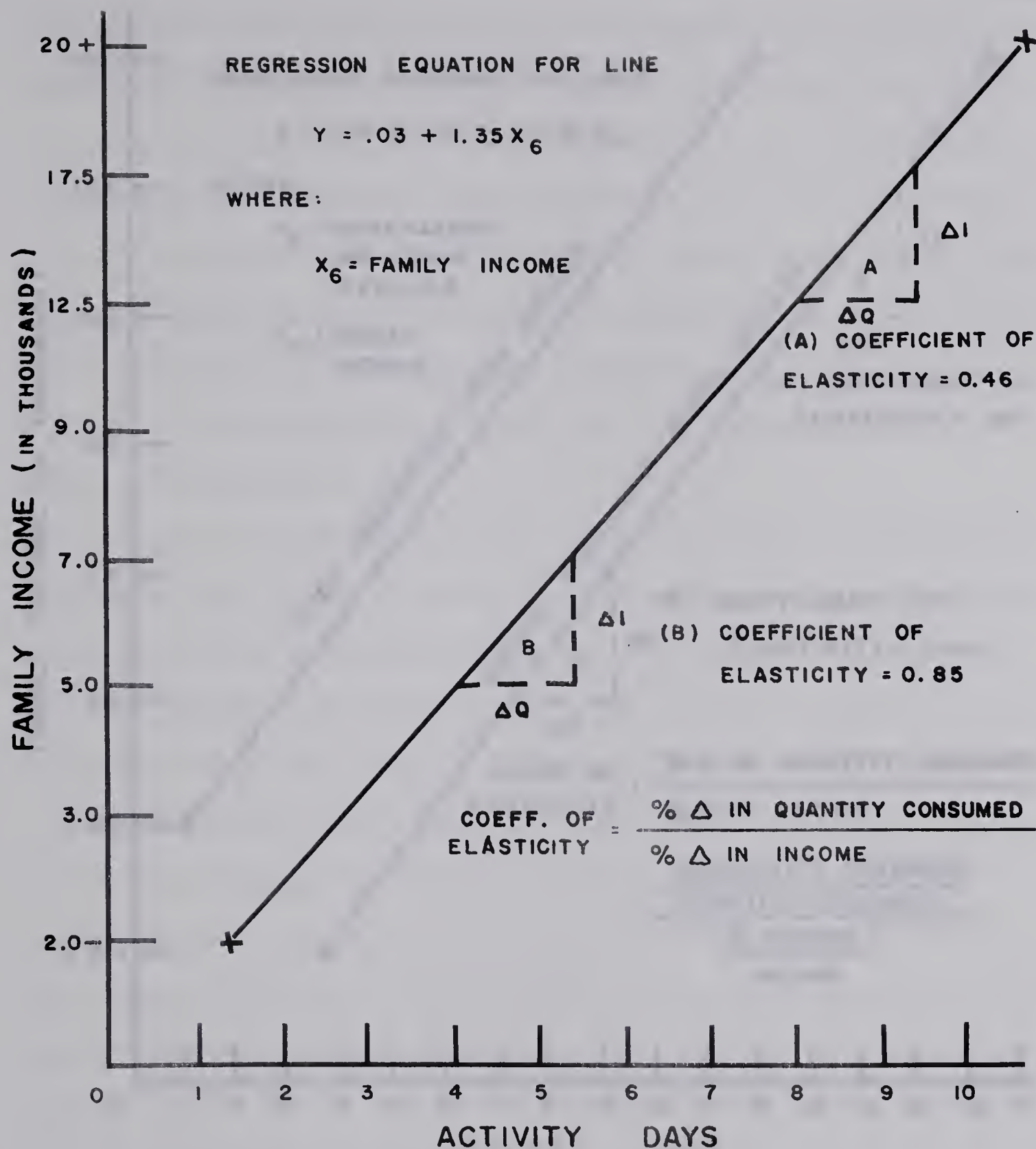


FIGURE 9

INCOME-CONSUMPTION LINE SHOWING INCOME ELASTICITIES ON PARTICIPATION IN PICNICKING

BY THE EDMONTON MALE ADULT POPULATION, JUNE 1, 1965 TO MAY 31, 1966

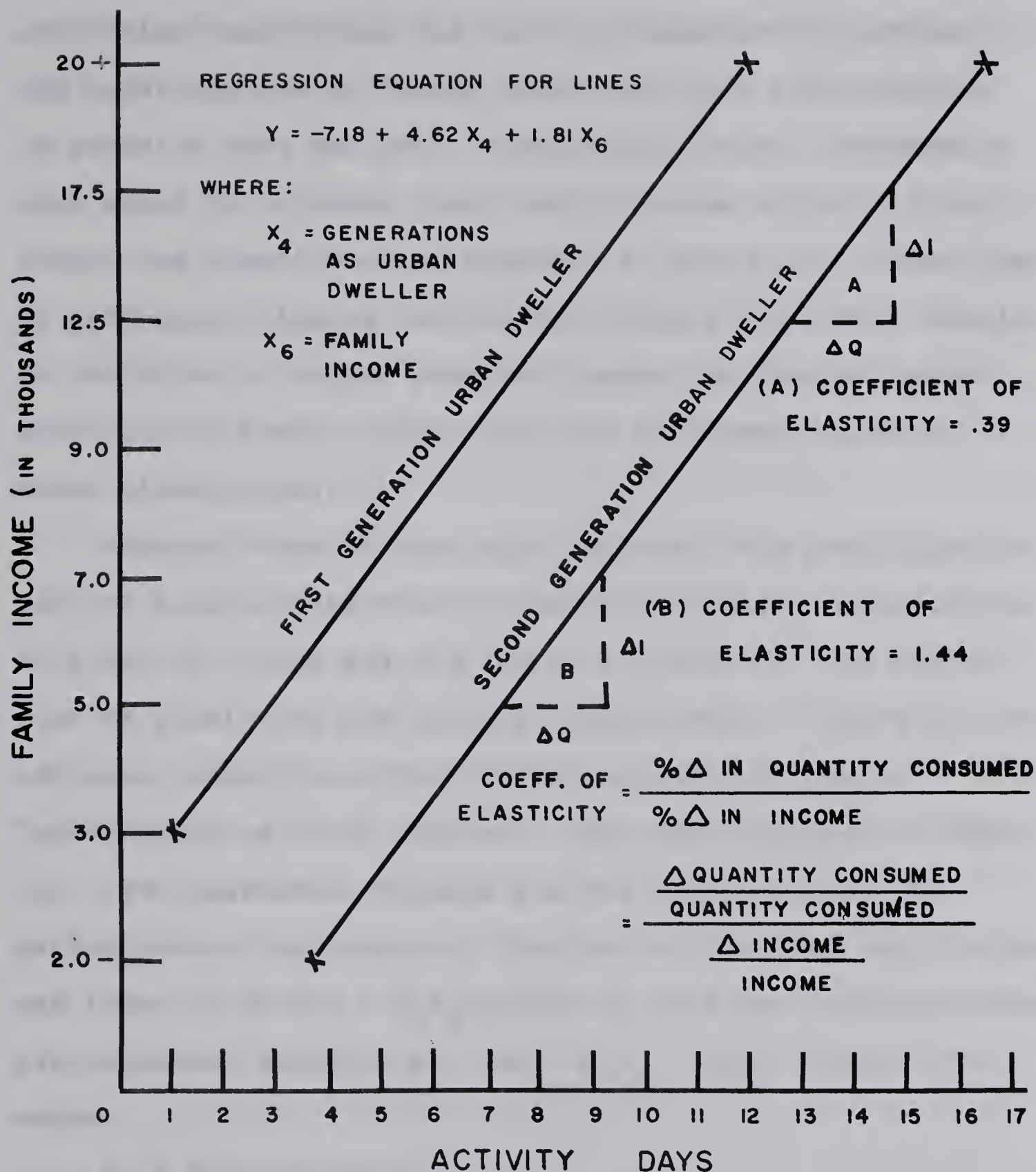


FIGURE 10

INCOME - CONSUMPTION LINES SHOWING INCOME ELASTICITIES AND INFLUENCE OF THE FACTOR "GENERATIONS AS URBAN DWELLER" ON PARTICIPATION IN HUNTING BY THE EDMONTON MALE ADULT POPULATION, JUNE 1, 1965 TO MAY 31, 1966

activities--picnicking and hunting respectively--showing the relationships of family income and male participation in activity days per year. Concerning income, respondents were asked to indicate their family income within a given range (see questionnaire, Appendix B, page 150), rather than to give exact figures because most people are either unable or unwilling to supply precise figures for family income. Midpoints of these ranges were used for computations of these elasticities.

Figures 9 and 10 show male activity days participation and arc elasticities over two selected family income levels --\$5,000 to \$7,000 and \$12,500 to \$17,500--for the activities of picnicking and hunting respectively. Figure 10, in addition, shows the effect of the significant factor "generations as urban dweller" upon participation in hunting. The regression formula for the income-picnicking participation (consumption) function of Edmonton adult males was found to be $Y = a + b_6 X_6$ (Figure 9), and the income-hunting participation function was $Y = a + b_4 X_4 + b_6 X_6$ (Figure 10), where:

Y is participation

a is the y intercept

X_4 is generations as urban dweller

X_6 is family income

b_4 and b_6 are regression coefficients.

The use of the formula (1) allows computation of income elasticity over any chosen range of income. Arc income elasticities, as computed by this formula, indicate the average percent change in participation in an activity which accompanies a one percent change in family income over any given range of income. Positive elasticities indicate that participation increases as family income increases. Negative elasticities indicate that participation decreases as family income increases. As observation of Figures 9 and 10 will show, male participation in picnicking and hunting, respectively, increases with family income (positive elasticities) but at a decreasing rate (decreasing coefficients of elasticity) throughout the \$2,000 to \$20,000 family income range studied. In this type of observation, it should be remembered that in using IC data, the majority of family incomes are between \$4,000 and \$10,000, so this is the most meaningful range of the IC curves for recreation planning and policy decision effects. To illustrate, in Figure 10, it would be very important to policy decisions, for example a proposed hunting license increase, to determine whether over this most meaningful income range the IC curve was to remain elastic or, if not, at what income point or range it became unitary and then at what point or income range inelastic relationships set in. Such analysis, providing all other things remained equal, would cast light upon the questions "Who could and who could not participate in

hunting?", and "What could be the expected reduction in amount of hunting participation?"

As a second illustration of a practical application of elasticities, suppose information is desired on the effects of a one percent increase in family income on participation when hypothetically the average family income within the study area ranges between \$5,000 to \$7,000 per year. Elasticities computed indicate that male participation in picnicking (Figure 9) would increase about .85 percent on the average over the family income range of \$5,000 to \$7,000 and in hunting (Figure 10) by about 1.44 percent on the average over the same income range. This type of information is highly important to efficient, successful recreation planning since over time, and providing there is no major catastrophe, the Edmonton population is (as is all of Canada) seated for greater and greater amounts of affluence.

Income elasticities refer to actual participation by people with different incomes and not to anticipated participation. In Figure 10, the B coefficient of elasticity indicates an elastic or "responsive" positive relationship between participation in hunting over a \$5,000 to \$7,000 family income range. The relationship between hunting participation and family income becomes increasingly more elastic as family income decreases. The positive relation indicates that as income increases, participation in hunting

increases, or, as income decreases participation in hunting also decreases. It could be argued, therefore, that any policy decision to increase resident hunting licenses in Alberta would in essence be similar in effect to a reduction in family income; that is, since the relationship as found was relatively elastic, such a policy decision would considerably reduce participation in hunting by Edmonton residents at least. Such policy decisions, if made, must be made in full realization that the amount of income one is willing to give up is mainly a function of how much income one has. To put it another way, as stated by the economist Seckler (5:491) in a recent article:

. . . if two individuals, A and B, are purchasing equal quantities of a recreational facility at any positive price and A has more income than does B, it is very likely that B enjoys that facility more than does A. This is so because it is likely that B has to give up as much of a more highly valued income than does A.

This aspect, stated so well by Seckler, is seldom realized. Rather, it tends to be forgotten in the ever increasingly popular trend by public recreation agencies of pricing what was previously a free or relatively free good. Such action obviously involves a loss to those not able (or willing) to pay.

Just as IC curves and the information obtained therefrom can be directed at similar policy issues, so to can they be directed toward policy formulation and planning of recreational facilities as means of resolving tension in the lower social classes.

For the measure of family income used, refer to Chapter I.

Age of participator. For males, the relationship of age of participator to participation was highly significant for the following: total number of activities participated in, activity score, and the high-cost facility participation category. At the 80 percent level of confidence, age was correlated with: the total amount of participation index, the passive participation planning category and to boating. The relationship of high-cost facility participation to age was direct; all other relationships were inverse.

The relationship of age to female participation was, at the 80 percent confidence level, positively related to but the one activity of playing outdoor games or sports which included primarily the three activities of golf, tennis, and lawn bowling.

Generations urban. The activities of camping, hunting, attending outdoor sports events and boating were related to generations urban for male participators at the 80 percent level of confidence. The latter activity only was inversely correlated to generations urban. Thus, male participation in the activities of camping, attending outdoor sports events, and hunting increased with increasing generations as urban dweller. That is, the longer an individual's family has been urban the greater his participation in these three activities. Figure 10 shows the graphic effect of this

factor in conjunction with family income upon participation in hunting.

This independent variable, acting alone, accounted for 32 percent of the sample data variability for the activity hunting; when acting in combination with family income, 48 percent of the data variability was accounted for. This was the greatest amount of explained variability in any activity, category or total participation index by any variable or combination of variables studied. In addition, generations urban in conjunction with age explained 39 percent of the sample data variability for the activity boating.

The variable was not significantly related to any activity or type of outdoor recreation participation by females. This observation tends to defy explanation. However, it should be emphasized that, urbanism and its more complex, more recent concept of metropolitanism as 'ways of life' are relatively new phenomena for mankind as a whole and for Canada in particular. Canada is not yet through its first half century as an urban nation; that is, as a nation in which more than half of its population lives in urban places. In consequence, an exceedingly important perspective in approaching outdoor recreation research and planning for Edmonton, or for any Canadian city for that matter, is that by no means has all of the urban population of Edmonton been born and reared completely in an urban environment.

See Table IX for details of the generations urban-male participation relationships. For the measure of generations urban see Chapter I.

Metropolitanism. For males, metropolitanism was inversely related only to ice skating and only at the 80 per cent confidence level.

This concept and its measure is discussed in Chapter III.

Estimating or Predicting Participation

Estimation or prediction of recreation participation may be desirable in the following three situations:

1. Participation by a given population.
2. Participation which takes place within a given area or region.
3. Participation at a given location or recreation facility.

The first situation, the estimating of the amount of participation by the Edmonton adult population, was considered and an estimate of 3,881,557 activity days was derived for participation in twelve outdoor activities only. The estimating of participation in situations two and three was not carried out although some thoughts are expressed further on in this regard. Concerning projection of participation in all three situations, the study was not designed specifically to discover factors for projecting participation to future dates. This study does, however.

raise rather interesting questions regarding projection of participation in future times.

From an overall perspective a latent danger of projecting plans for future facilities as projections of present patterns of activity as found in this study, or any study for that matter, lies in the possibility that present facilities form distorted patterns rather than well balanced ones. Hence, a study based upon such projections only perpetuates a condition of facility imbalance.

In the mail questionnaire (see Appendix B, page 150), respondents were asked "Why don't you (participate) more often?" Limiting factors, given as responses to this question, are presented in Table XIII.

Lack of time was the limiting factor mentioned most often by both males and females. This reason, however, is probably given sometimes when other reasons are actually the cause. Also, this might lead one to believe that shorter scheduled workweeks for males and decreasing birth rates and increasing home conveniences for females would result in higher participation rates. This type conclusion is one that is advanced by the general literature, but a recent study (6) cautions against its general acceptance, at least in the short-run, for it was found that participation was positively associated with length of workweek.

The importance of this limiting factor--lack of time--needs to be viewed in the perspective of its affect upon

TABLE XIII

REASONS GIVEN FOR NOT PARTICIPATING AS MUCH AS DESIRED,
PLUS NUMBER AND PERCENT OF PERSONS REPLYING IN TOTAL
AND BY SEX

Reasons Given for Not Participating	Number and Percent of Persons Replying					
	Total		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
Facilities too crowded, inadequate or distant.	15	20.0	8	17.0	7	25.0
Lack of:						
Money	4	5.3	3	6.4	1	3.6
Time.	40	53.3	28	59.6	12	42.9
All other reasons . . .	<u>16</u>	21.4	<u>8</u>	<u>17.0</u>	<u>8</u>	28.5
Total Replying. . .	75		47		28	

participation, and within the overall leisure time feelings of the general populace. Table XIV below, shows the response of all 210 respondents to the question: "Some people say that nowadays we have too much leisure time, others say that they have too little. Do you feel that you have just about the right amount of time for leisure activities, or too little, or too much?"

It is interesting to note that 47 percent of the respondents were of the opinion that their leisure-time was "just right." From the speculative view, had this question been asked after the summer or fall period, rather than when it was, the responses by Edmontonians could conceivably have been quite different. The frame of reference likely used by many to answer the question concerning

TABLE XIV

LEISURE-TIME FEELINGS OF RESPONDENTS, SPRING, 1966

Leisure-Time Feelings	Number and Percent of Persons Replying					
	Total		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
Too much.	5	2.38	1	.96	4	3.77
Too little.	93	44.29	49	47.12	44	41.51
Just right.	99	47.14	50	48.07	49	46.23
No answer, or don't know. . . .	<u>13</u>	6.19	<u>4</u>	3.85	<u>9</u>	8.49
Total Replying. .	210		104		106	

leisure-time feelings was the relatively long, cold winter and its resultant effect of generating considerable indoor living; this, in turn, affecting respondent attitudes toward the amount of leisure-time available.

Twenty percent of all respondents considered inadequate, overcrowded and too distant facilities as important limiting factors to their participation. One of the numerical values of this limiting factor shown in Table XIII, page 115, was used in the estimation of current demand of twelve selected outdoor recreation activities of the Edmonton adult population. See both the methodological and data flow charts, Figures 1 and 2, respectively.

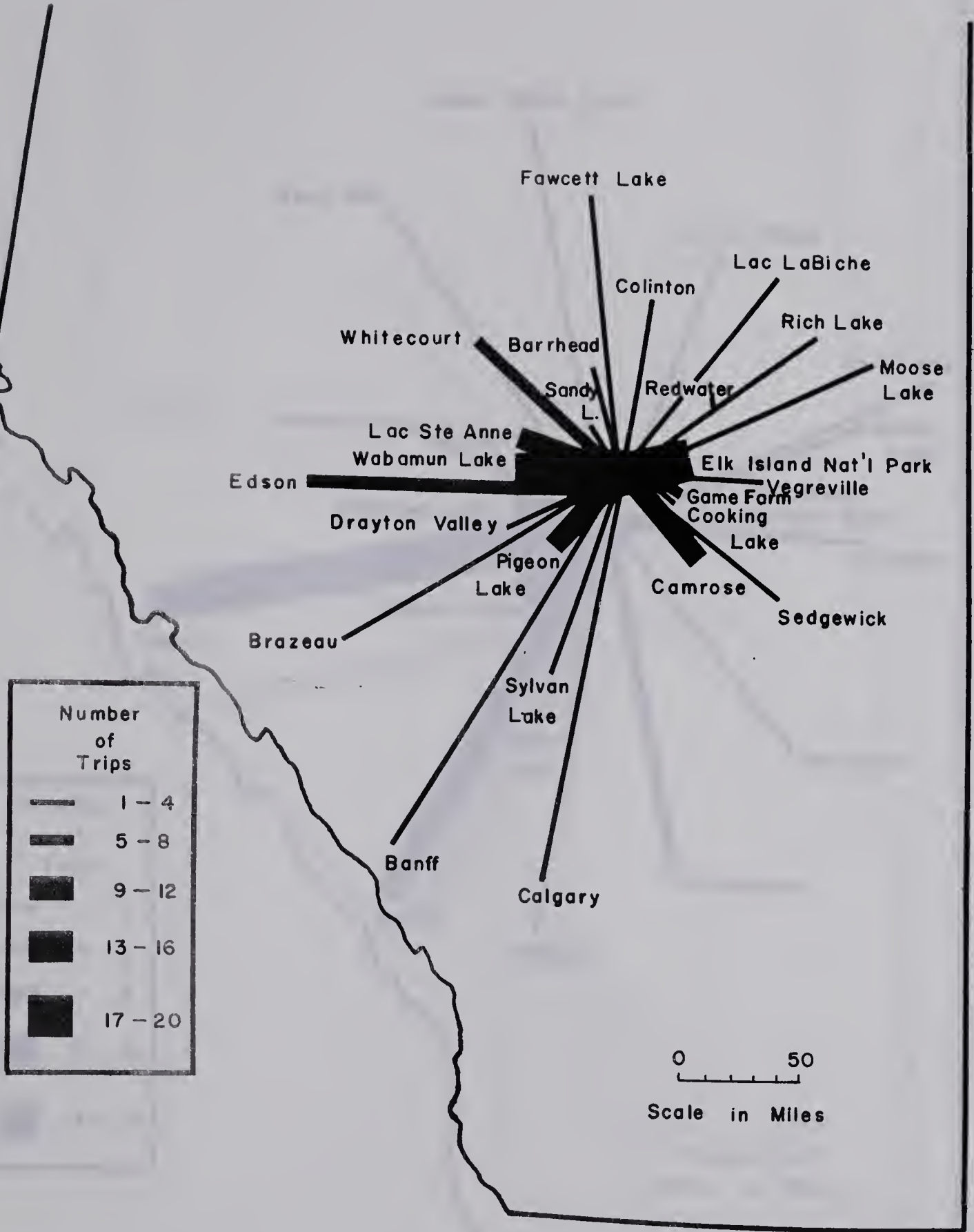
It is possible that this factor is even larger than this study indicated. This could be determined by adding a special probe question to the questionnaire. For example,

by asking a probe question, directed at those people who desired more outdoor activity but who did not mention facilities as a limiting factor, whether there actually were facilities in the area for the desired activity.

The second situation, estimating and predicting participation within a given area is probably best approached by estimating participation of the population of that area and then determining net gain from or loss to other areas. This net gain or loss must consider a number of factors not yet discussed. Factors such as opportunity to participate or availability of facilities, complementarity and competitiveness of facilities and distances people are willing to travel for various types of recreation must be taken into consideration.

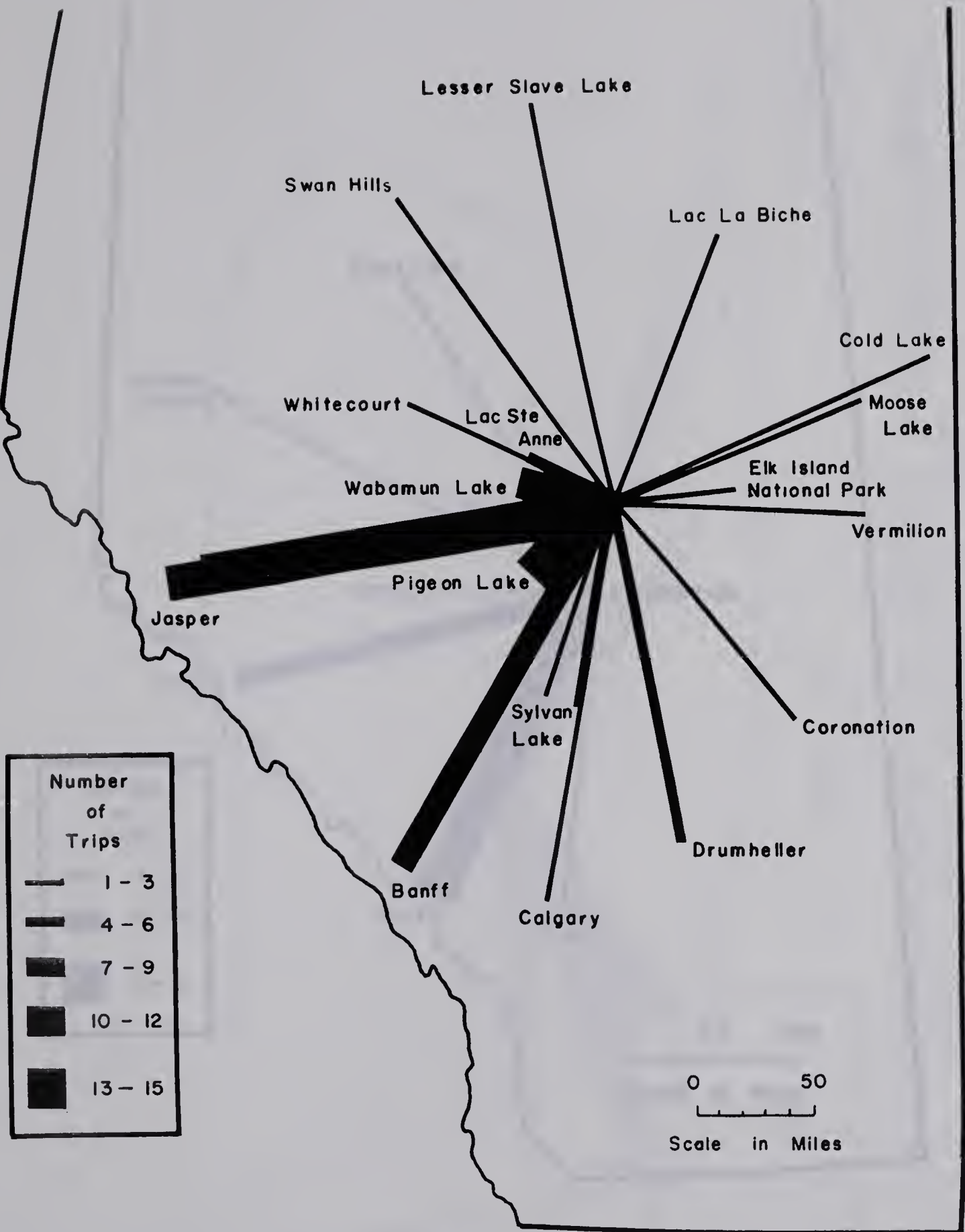
The distances that Edmonton people are willing to travel in pursuit of outdoor recreation for the better part of a day, for an overnight trip or for a vacation are shown in Maps 1 to 5. In general, Edmontonians are willing to travel further for the longer term experiences and the travel is predominantly in a west, south-west orientation. This directional orientation is true for all but the better-part-of-a-day trips. For these, the pattern was predominantly an east-west orientation.

Also, from these travel patterns one may observe the trend or the amount of travel toward those recreation areas where variety can be obtained or at least can be expected.



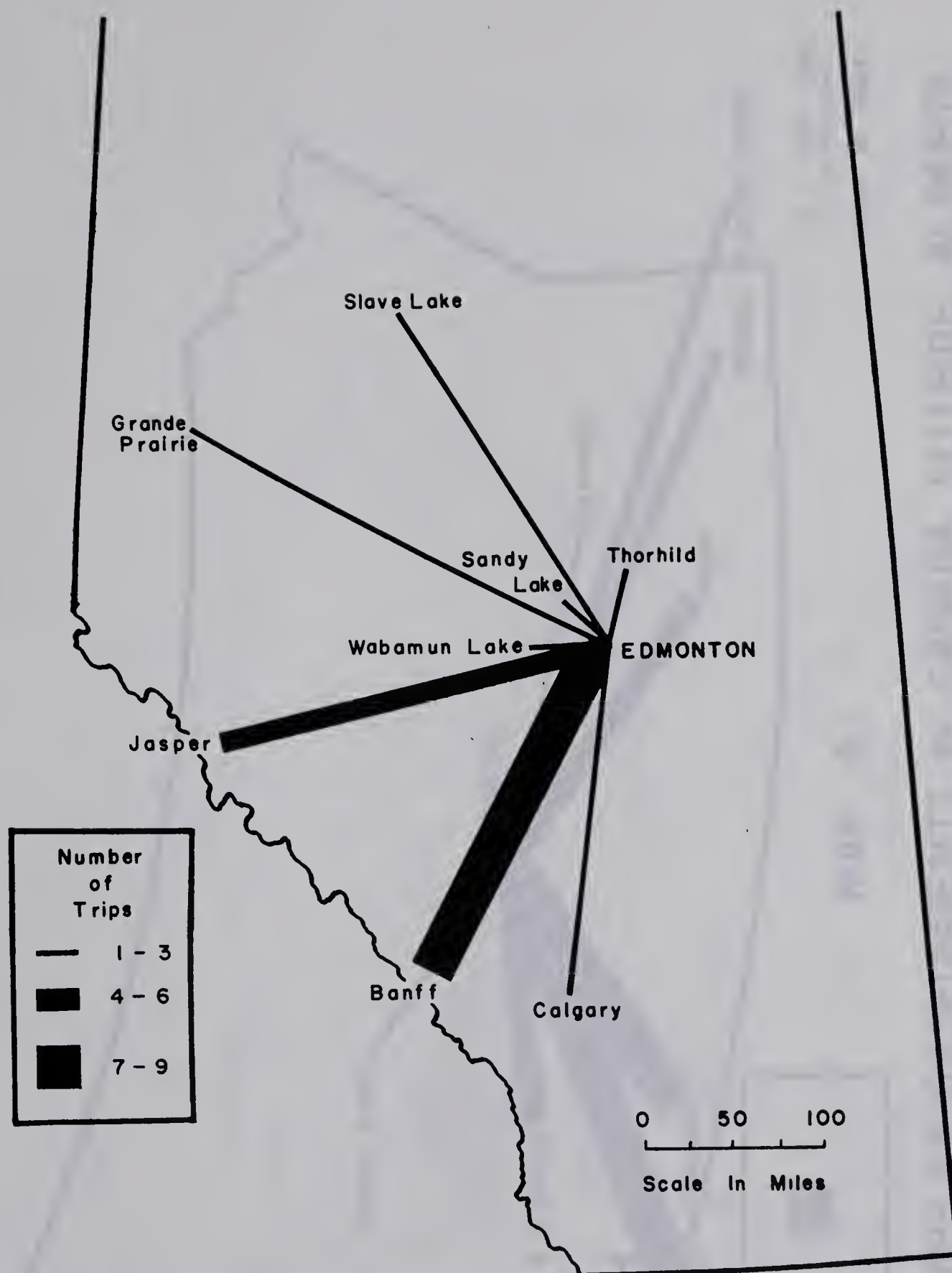
MAP I

DAY RECREATION TRAVEL PATTERN
BY RESPONDENTS
JUNE 1, 1965 TO MAY 31, 1966



MAP 2

OVERNIGHT RECREATION TRAVEL PATTERN
 BY RESPONDENTS
 JUNE 1, 1965 TO MAY 31, 1966



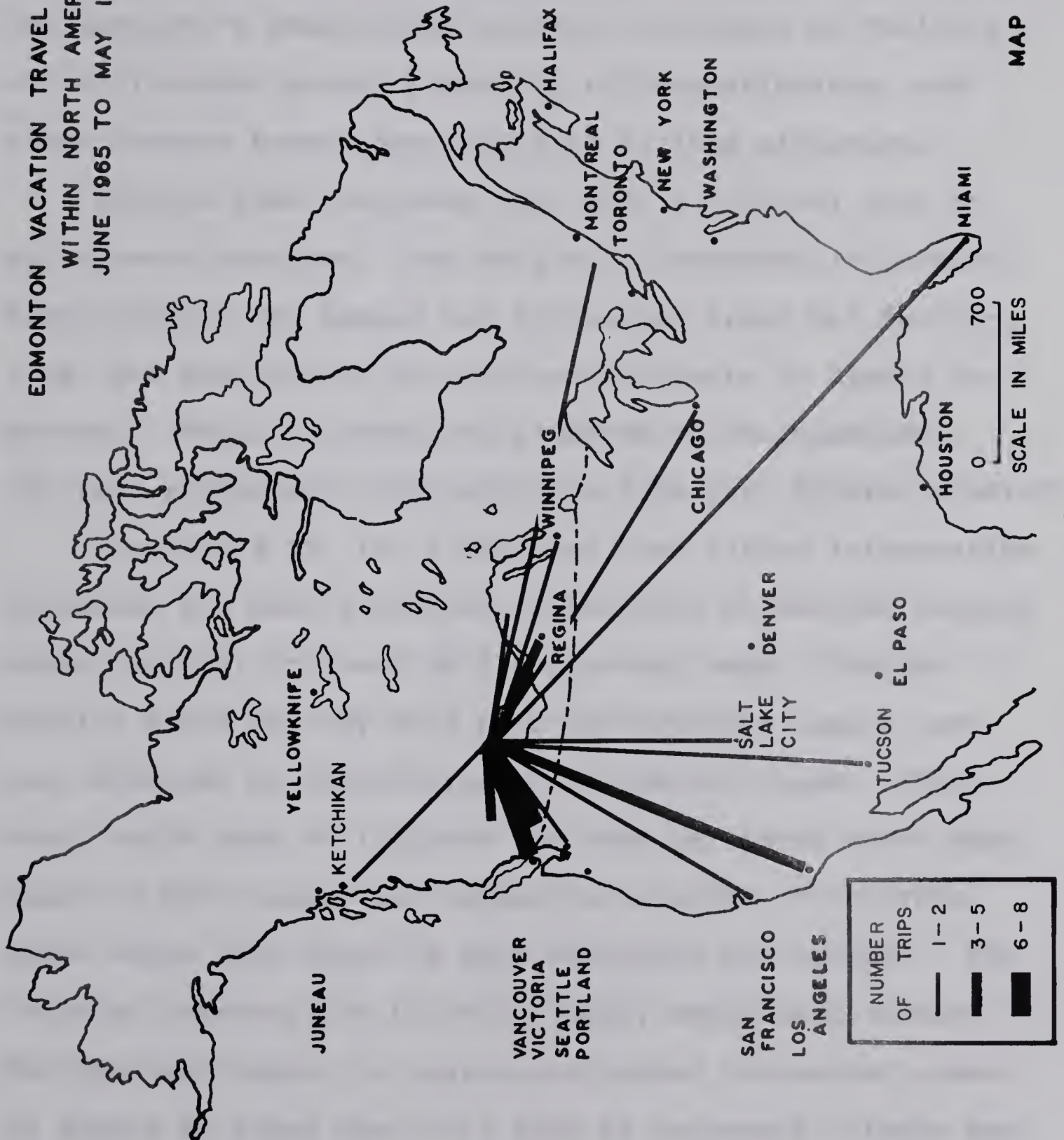
MAP 3

VACATION TRIPS WITHIN ALBERTA
BY RESPONDENTS
JUNE 1, 1965 TO MAY 31, 1966



VACATION TRIPS BY RESPONDENTS IN CANADA OUTSIDE ALBERTA
JUNE 1, 1965 TO MAY 31, 1966

EDMONTON VACATION TRAVEL PATTERN
WITHIN NORTH AMERICA
JUNE 1965 TO MAY 1966



MAP 5

This tends to emphasize that the recreation planner must provide a cafeteria of activities; the recreation complex with supporting services is a planning necessity.

For situation three, participation at a given location, an operator should consider complementarity, competitiveness of facilities, and distance, as discussed for situation two. The operator's competitive position as regard to facility attractiveness, price, proximity to recreationists, and other factors become more critical in this situation.

Leisure time increases will play a critical role in all three situations. Not only will increases in leisure time increase the demand for recreation areas and facilities, but the form of the increased leisure is highly important. Table XV shows the response to the question: "As your preference, how would you like your future leisure?"

From Table XV, it is observed that future leisure-time increases are most preferred in the form of shorter working hours per day, followed by the four-day week. Shorter working hours per day will have the greatest impact upon user-oriented or urban-oriented recreation areas. This then, would tend to increase the need for parks where open space is most scarce and expensive relative to outlying areas where land space is more available and cheaper. The four-day workweek, on the other hand, would tend to have the greatest impact on regional-oriented recreation areas. It should be noted that this form of increased leisure was most preferred by males. The desire for longer paid

TABLE XV

NUMBER AND PERCENT OF PERSONS* DESIRING PARTICULAR
FORMS OF LEISURE-TIME INCREASE

Forms of Leisure-Time Desired	Number and Percent of Persons* Replying					
	Total		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
In a longer vacation period.	22	23.66	11	22.44	11	25.00
In the four-day workweek	24	25.81	18	36.74	6	13.64
In shorter working hours per day.	33	35.47	13	26.54	20	45.45
In other forms	7	7.53	3	6.12	4	9.09
No opinion or failed to answer	<u>7</u>	7.53	<u>4</u>	8.16	<u>3</u>	6.82
Total Replying	93		49		44	

* Refers to those respondents who originally expressed "too little" leisure-time (see Table XIV, page 116).

vacations will tend to have the greatest effect upon resource-based areas, extending from the regional-park concept to national parks and wilderness areas.

Table XV would tend to suggest that the impact of the approaching four-day workweek and the shorter working day be given careful consideration in any recreation planning within the Edmonton urban and regional environments. This is a necessity, since people's desires carry with them the seeds of change.

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2. Gerald Phillip Owens, "Factors Affecting Demand for Outdoor Recreation" (unpublished PhD thesis, Ohio State University, 1965), p. 28.
3. Ibid., p. 85.
4. J.R. Hicks, Value and Capital, Second edition (London: Oxford University Press, 1946), Part I.
5. David W. Seckler, "On the Uses and Abuses of Economic Science in Evaluating Public Outdoor Recreation," Land Economics, XLII: 491, 1966.
6. Owens, op. cit., p. 63.

CHAPTER V

SUMMARY AND CONCLUSIONS

This study was undertaken primarily to increase the knowledge of factors affecting participation in outdoor recreation.

Objectives were: (1) to estimate the current demand for twelve outdoor recreation activities of the Edmonton adult population; (2) to isolate significant factors which are thought to be "shifters" of outdoor recreation demand and to test seventeen hypotheses concerning the relationships between participation and socio-economic variables; (3) to find mathematical functions to describe the relationships between participation and one or more socio-economic variables in order to incorporate greater "objectivity" into planning for recreation; and (4) to develop recreational travel patterns of the Edmonton adult population during the period June 1, 1965 to May 31, 1966.

Data for this investigation were collected over a six week period by mailed questionnaires from a random sample of households in Edmonton, Alberta, Canada. Of the total 452 questionnaires distributed 210 completed questionnaires were returned. Participation in twenty-five outdoor activities was obtained for each respondent in units of activity days per "designated" quarter-period. Information on

various characteristics of the respondents, head of respondent's household and respondent's family was obtained.

The analysis of data was performed primarily by comparing participation in the various outdoor activities, planning categories and total participation indices with characteristics of participants using linear regression technique.

Although participation data for twenty-five activities were collected, only twelve activities contained sufficient data for their own detailed analysis. Activities studied in detail were:

- | | |
|------------------------------------|----------------|
| 1. Playing outdoor games or sports | 7. Fishing |
| 2. Driving for pleasure | 8. Boating |
| 3. Attending outdoor sports events | 9. Swimming |
| 4. Sightseeing | 10. Hunting |
| 5. Sledding and tobogganing | 11. Camping |
| 6. Ice skating | 12. Picnicking |

In addition, three indices of total participation and six planning categories were considered. The three total participation indices were:

1. Total number of activities participated in.
2. Activity score.
3. Total amount of participation.

The six planning participation-type categories were as follows:

1. Active
2. Passive
3. Water-oriented
4. High-cost facility
5. Urban-oriented
6. Regional-oriented

The following factors or characteristics of participants were compared with participation:

1. Age of participant
2. Own education
3. Head's education (females only)
4. Generations as urban-dweller
5. Residential concentric distance zone from city center
6. Family income
7. Metropolitanism

These factors were used as independent variables in multiple stepwise linear regression analysis, separated by sex. All independent variables were quantitative by nature, although two of the factors may be thought of as borderline cases.

Findings and conclusions are discussed mainly in terms of the three indices of total amount of participation. However, the six participation-type planning categories and twelve outdoor activities will be of prime concern to persons dealing with Edmonton's urban and regional recreational planning or with any of the twelve recreation activities and their facility requirements.

The data presented in Chapter IV showing per capita activity participation rates and the magnitude and nature

of all significant relationships between participation and the various characteristics of participants contributed to the fulfillment of objectives one, two, and three. In addition, income-consumption curves for the two activities of picnicking and hunting were constructed which show average male participation, expressed in activity days per year, which occurs at various levels of family income. From these IC curves, income elasticities were computed which show the "responsiveness" of actual participation (not anticipated participation) by people with different family incomes. This methodological development contributed to the fulfillment of objective three; that is, the methodology developed has considerable potential towards incorporating "objectivity" into recreation planning and policy-making.

The quantitative variables, rank-ordered in terms of the number of activities to which they were significantly correlated and the significance level of the relationship, are as follows:

1. Family income
2. Own education
3. Generations urban
4. Distance zone
5. Age of participant
6. Metropolitanism

The rank order of the quantitative variables in approximate order of the magnitude of their effect on participation indices and planning categories, are as follows:

1. Own education
2. Residential distance zone
3. Family income
4. Age of participant
5. Generations urban
6. Metropolitanism

Descriptive statistics of number and total amount of participation and their rank-orders, plus percent of persons participating in each of the twelve outdoor activities and six planning categories of type of participation were tabled and graphed. Of the twelve activities, driving for pleasure was by far the most and hunting was the least participated in activities both in amounts of participation (activity days) and percent of persons participating. Surprisingly, swimming was rank-ordered as the third most participated in activity and with the second greatest amount of participation. Means of participation by participant and by person, separated by sex, plus per capita participation for all twelve activities, six planning categories and three total participation indices were tabled and graphed. Concerning male participants, the activity camping had by far the greatest amount of participation (11:88 activity days) while sightseeing had the least (4 activity days). For

female participants, swimming had the greatest amount of participation (10.96 activity days) while attending outdoor sports events had the least (2.46 activity days per participant). In this regard, of the 106 females studied, none registered any participation whatsoever in the three outdoor activities of hunting, ice skating, and sledding and tobogganing. Per capita participation was found to be the greatest for the activity driving for pleasure and the least for hunting.

Of interest to planning is that, for both male and female participants, those outdoor activities which take place within the regional environment, rather than the urban environment, had the greatest amount of participation per participant. The high-cost facility planning category had, as expected, the least amount of participation per participant for both sexes. The passive and urban-based outdoor recreation activities had the greatest amount of per capita participation. Viewed in terms of the "physical vigor" of their outdoor recreation pursuits, the Edmonton adult population, it may be said, partakes in more than twice as much "passive" than "active" outdoor activity.

In an overall perspective, male participants were found to engage, on the average, in 5 outdoor recreation activities with participation amounting to approximately 35 activity days per year. Female participants, on the other hand, were found to participate in 4 activities amounting

to approximately 31 activity days per year. These rates of participation per participant must be viewed in the context that a considerably larger number of females than males do not engage in any outdoor recreation as observed by comparing the activity days per participant and per person columns of Table IV. For some planning purposes, therefore, it would be more appropriate to use overall per capita participation rates. Thus, on the average, an Edmonton adult resident may be said to engage in approximately 4 outdoor recreation activities amounting to approximately 26 activity days of participation per year.

In total, twelve outdoor activities plus three indices of total participation comprising all twenty-five activities, six planning categories comprising the activities listed for each category and seven quantitative variables (for a total of 28 characteristics) were studied in detail.

Each activity, category and index must be analyzed separately according to the particular characteristics to which they are significantly related. Tables V to X give these significant relationships for the Edmonton adult population. Table XI shows the seven hypotheses for males and Table XII the seven hypotheses for females that were accepted.

Considerable data concerning participation, characteristics of participants and distances traveled for recreation have been presented. This information is

pertinent to many phases of outdoor recreation research, planning and policy-making. It can be helpful as data, within the limits set forth in Chapter I. It may be valuable from the standpoint of methodology in that the methodological development has been focused on structuring greater objectivity into recreation planning. However no concise reliable mathematical formula for immediate use in the planning for Edmonton's recreation is given. The framework of this study should be helpful to future studies of this nature, but actual estimates or reliable predictive formulae depend on many variables, other than the ones investigated and which are unique to the Edmonton population.

Suggestions for further research. Social behavior is subject to social norms; that is, human behavior is conditioned by the structure in which a person is placed. Thus in a person's daily life, each individual takes up a number of positions, of which society has different expectations. Each position requires from that person a certain behavior: the so-called role behavior. Each individual then, is guided in his behavior by the norms of the groups with which he has a certain relationship. This implies then, relating to outdoor recreation pursuits, that the role-player conforms to the occupation of his free time to what is expected of a man of his position. Studies designed to test hypothesized relationships between social behavior, expectations and forms of outdoor recreation participation, such as

suggested, are needed and could prove a very fruitful area of study.

A need for improving future studies of recreation participation is that of developing a methodology for measuring the intensity of participation. In addition to a measure of time spent in an activity, some measure of the importance of this participation to the individual is needed. A measure that takes both these variables into account would be valuable.

Pertaining directly to planning, studies addressed explicitly to the determination of norms for recreational activity in both the Edmonton urban and regional environments, in particular the regional environment, and which would permit an evaluation of the region's adequacy in these facilities are needed.

More intensive analytical studies of recreation phenomena could be conducted on an enterprise or case study level at considerably less expense than an extensive study of a large population such as was done in this study. Results could be very meaningful, especially if put in context with an overall study such as this.

In concluding, it would be desirable to study the relationships between cost to participate and participation in the various outdoor recreation activities. The result could lead to the construction of demand curves in which price (cost) elasticities and cross elasticities could be

computed in order to illustrate consumer reaction to changes in costs to participate. This would have a direct importance to recreation planning and, in particular, to pricing policy formulation. In addition, average elasticities computed from cost and income elasticities would then possibly indicate, although not prove, whether participation in a particular outdoor activity was more responsive to either cost or income changes.

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APPENDIXES

APPENDIX A

LETTER OF INTRODUCTION AND FOLLOW-UP LETTER

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LETTER OF INTRODUCTION AND FOLLOW-UP LETTER

FACULTY OF PHYSICAL EDUCATION

EDMONTON, ALBERTA
CANADA

Dear

An Edmonton Metropolitan population survey of public preferences for outdoor recreation activities will be conducted shortly. This survey is being carried out under the supervision of the Faculty of Physical Education and its Department of Recreation Administration at the University of Alberta. It has been designed to obtain an accurate picture of what the people of the Edmonton area prefer and what recreational activities they now engage in. This is the first time that any extensive survey has been undertaken in the Edmonton area requesting information concerning present participation in outdoor recreation activities.

There is a growing shortage of outdoor recreation facilities in Canadian urban areas. Conditions at Edmonton parks, in its swimming, camping and picnic areas, in the wildlife sporting pursuits and so forth are becoming increasingly over-crowded. It has generally become recognized that something must be done with respect to future planning of recreational facilities in the Edmonton region. In order to plan intelligently, up-to-date information is requested indicating present and future recreational needs.

In order to obtain information about the Edmonton Metropolitan population we have drawn, by sampling procedures, a sample of people from this population. You were chosen by scientific methods and the sample of which you are a member is an accurate cross-section of the population. Briefly, the questionnaire being mailed to you shortly, requests information on your favorite outdoor recreation activities during one particular three-month season of the year, plus information on the outdoor activities that you took part in on your vacation (s), recreation trips, outings, etc. in that season. You, therefore, have an important part in this survey -- in fact, you are the "key" to its success. Also this is your opportunity to express what activities you take part in, if any, and what outdoor recreation activities you prefer.

The results of all questionnaires will be combined and published in a report which represents the Edmonton region as a whole. The report will be statistical; no person is ever identified. Your completed questionnaire will be held in strict confidence.

In order that the cross-section sample is accurate we cannot make substitutions. Therefore, upon receiving the questionnaire please answer from your own viewpoint and your own participation in outdoor recreation. Do not consider anyone else or any other member of your family. Secondly, whether you participate a great deal, somewhat, or not at all, in outdoor recreation activities, the return of your questionnaire is important. Thirdly, you will, we hope, enjoy contributing to this survey as a means or providing information concerning Edmonton's recreational development. Your co-operation is urgently requested and will be greatly appreciated by all concerned.

Thanking you, we are,

Sincerely yours,

M. L. Van Vliet

Dean, Faculty of Physical Education

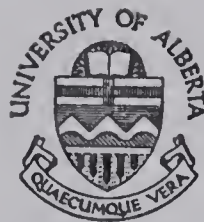
R. G. Glassford

Mr. G. Glassford (staff)
Faculty of Physical Education

P. J. Dooling
Survey Director

If you have any questions, or would like additional information about this survey, we will be happy to answer any inquiries. Please call: University of Alberta, 439-8721 and ask for Extension 612.

FACULTY OF PHYSICAL EDUCATION

EDMONTON, ALBERTA
CANADA

June 17, 1966

Dear Respondent:

This letter is a reminder that to date we have not received your completed questionnaire concerning your outdoor recreation preferences and participation. We sincerely want to know your viewpoint, your preferences, and your participation, if any. Also, it is essential that we obtain your completed questionnaire as soon as is possible for we must also meet required deadline dates if this project, as planned, is to be useful.

The questionnaire may, in appearance, seem lengthy to you. The time taken to complete it depends, of course, on your amount of participation in outdoor recreational activities during your "designated" season. You have only one three-month season to consider. Normally, this questionnaire will only take you ten to twenty minutes to complete fully.

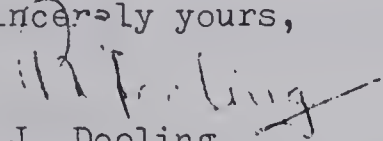
Furthermore, whether you participated a great deal, somewhat or not at all, in outdoor recreation activities for your designated season, the return of your questionnaire is all important.

Finally, there are no right or wrong answers. Rather, we only desire to know your opinion. Frankly speaking then, this is your opportunity to express what you want and what facilities you desire.

Simply complete your questionnaire accurately, place within the self-addressed and stamped envelope provided to you and mail at your earliest convenience.

Thanking you, we remain

Sincerely yours,


P.J. Dooling
Survey Director

P.S. If you have any questions, or would like additional information, about this survey, or have lost your questionnaire and wish it replaced, please call: University of Alberta, 439-8721 and ask for Extension 365 or 612.

PJD:dit

STUDY OF PHYSICAL EDUCATION

in the schools of Illinois

Volume II

APPENDIX B

QUESTIONNAIRE AND CALENDAR CARDS FOR DESIGNATED PERIODS

University of Illinois at Urbana-Champaign

Department of Physical Education

Urbana, Illinois

FACULTY OF PHYSICAL EDUCATION

University of Alberta

Edmonton, Alberta



**Metropolitan Edmonton Outdoor Recreation
and Preference Survey
June 1965 to May 1966.**

FACULTY OF PHYSICAL EDUCATION

University of Alberta
Edmonton, Alberta

**Metropolitan Edmonton Outdoor Recreation
and Preference Survey
June 1965 to May 1966.**

Confidential: All information which would permit identification of the individual will be held strictly confidential; will be used only for statistical purposes for this study and will NOT be disclosed or released to others for any other purposes.

GENERAL INFORMATION

As the Edmonton Metropolitan population grows and as our people have more leisure time, there is a constantly increasing need for public and private outdoor recreation facilities. In order to meet this problem up-to-date information is needed on how people spend their free time and the kinds of outdoor recreation they like. You, therefore, as a chosen participant of this survey and whether you take part frequently or not at all in outdoor recreation activities are all important. You alone play a vital role in this survey. You were chosen as a member of this survey through chance procedures.

This questionnaire is divided into four sections. Each of the first three sections deal with a different aspect of your recreational experience; while the fourth section provides space for certain background information about yourself. There are no right or wrong answers to this questionnaire, we only wish information on your activity preferences and your actual participation in outdoor recreation activities. Upon completing fully this questionnaire please place within the stamped self-addressed envelope provided and mail.

GENERAL INSTRUCTIONS

Please read the following CAREFULLY:

1. As a member of this survey, the answers you give **MUST** refer to you **ALONE** and not to the other members of your family. Remember that the term "you" refers to your own activities.
2. All activities you report in this questionnaire must be done **AWAY** from **HOME** and not in your own yard; secondly, they must be done for pleasure only.
3. The questionnaire, as stated earlier, is in four sections. These will help you remember what you did during the three month season in question. Answer each and only that section of the questionnaire as you come to it. **START** at the beginning and follow instructions within the questionnaire carefully.
4. Answer each question only after you are satisfied that your reply is accurate.
5. If you are unable to answer some of the questions, such as distance travelled, family income, etc., then you may ask someone else in your family who knows the answer.
6. A calendar for the _____ season in question is enclosed. You may want to refer to it as you go through this questionnaire.
7. If, at anytime, you wish to explain yourself more fully on a particular question, footnote the question to which you are referring and write your explanation in the "comments" space provided on that page.
8. Report only, throughout the first three sections of this questionnaire, your preferences and participation in outdoor recreation activities for the _____ season, _____, 196__ to _____ 196__. **DO NOT REPORT ANY OTHER PREFERENCES OR PARTICIPATION IN OUTDOOR RECREATION FOR ANY OTHER SEASON NOR ANY OTHER YEAR.**

Turn to Page One.

PAGE 1 : SECTION I

Section I considers your outdoor recreation **PREFERENCES** for the _____ season only, along with two questions as to how you spend your leisure time generally.

1a. First, consider your leisure time; that is, the time you have after work for hobbies and recreation--both indoors and outdoors. How do you usually spend MOST of your leisure time?

b. Are there any other activities on which you spend much of your free time--in the evenings, in your time-off, and on the weekends?

2a. Some people say that nowadays we have too much leisure time, others say that they have too little. Do you feel that you have just about the right amount of time for leisure activities, or too little, or too much?

b. Why do you say so?

(In 2a, if you stated "too little" leisure go to 2c; rest skip to question 3).

c. As your preference, how would you like your future leisure? (Place a check in your MOST preferred only).

1. ☐ -in a longer vacation period.
2. ☐ -in the four day week.
3. ☐ -in shorter working hours per day.
4. ☐ -other: (specify) _____

3. Now, thinking of _____, that is, _____, _____ and _____, is there an outdoor activity that you particularly enjoy doing?

1. ☐ Yes - what is it?

2. ☐ No (skip to question 6).

4a. Where do you usually go to ?

(Check one box)

1. ☐ -A specific place away from home.

(Go to question 4b)

2. ☐ -In the immediate neighbourhood.

3. ☐ -Many places, can't select one.

4. ☐ -Do not participate frequently.

5. ☐ -Do not know.

} skip to question 5

b. Are you satisfied with this place as one in which to ?

1. ☐ Yes - What is it that you like MOST about this place?

2. ☐ No - Why not? _____

5. Do you as often as you would like?

1. ☐ Yes - (Go to question 6).

2. ☐ No - Why don't you. . . . more often? _____

6. If there a _____ outdoor activity which you don't do at all but would like to do?

1. ☐ Yes - What activity? _____

Why don't you . . . ?(State your reason) _____

2. ☐ No - (Go to page 2).

COMMENTS:

PAGE 2 : SECTION II A

Now, I would like you to think of and report those outdoor recreation activities that you took part in while on vacation, recreation trips, and outings. This section II A concerns only your VACATION. Section II B, page 3 concerns your overnight trips and section II C, page 5 concerns your recreation outings. You may here want to refer to the calendar provided.

7. Did you take a vacation AWAY FROM HOME between _____ and _____ of 196— ? 1. <input type="checkbox"/> Yes — In which month did you begin your vacation? _____ 2. <input type="checkbox"/> No — (Skip to Section II B, page 3).	Line No.	Activity List	Yes	No. of Days
	1	Bicycling (for pleasure)		
	2	Horseback riding		
	3	Playing outdoor games or sports		
		Total (including golf & tennis)		
		Golf (only)		
8. Where did you go? Province: _____ Place: _____		Tennis (only)		
	4	Fishing		
	5	Canoeing		
9. About how many miles did you travel altogether? MILES: _____	6	Sailing		
	7	Other boating		
	8	Swimming		
10. Did you go by private automobile or some other way? (Enter each means used). 1. <input type="checkbox"/> — Automobile 2. <input type="checkbox"/> — Other (specify) _____		Total		
		Lake, pond or stream only		
		Pool only		
	9	Water Skiing		
	10	Hunting		
11. How many days were you away? DAYS: _____		Big & Small Upland Game		
		Water Fowl (only)		
	11	Camping		
12. How many people were in the immediate party? NUMBER: _____		Developed Area		
		Remote or Wilderness Area		
	12	Mountain and Rock climbing with gear		
13a. Looking at the activity list on this page check off in the "Yes Column" provided those activities in which you <u>did</u> take part in during your vacation trip.	13	Hiking (with pack)		
	14	Walking for pleasure		
	15	Wildlife and bird photography (in natural surroundings)		
b. Were there any others not on the list? (if so, enter at bottom of the list). (Ask yourself for <u>each</u> activity you checked off). c. On how many different days did I go. . . . ? (Enter this number for each activity in the correct space provided in the "number of days" column).	16	Nature Walks (to observe birds, animals, plants, etc.)		
	17	Picnics		
	18	Driving and riding for pleasure		
	19	Sightseeing (viewing a historic, scenic or other attraction).		
	20	Attending outdoor sports events		
	21	Attending outdoor concerts, plays, etc.		
	22	Ice skating (outdoors)		
	23	Snow skiing		
	24	Sledding or tobogganing (includes power units)		
	25	Snowshoeing (for pleasure)		
COMMENTS:	26			
	27			
	28			

PAGE 3 : SECTION II B

14. (In addition to your vacation trip) Between _____ and _____, did you take any trips overnight or longer PRIMARILY TO TAKE PART IN ANY OUTDOOR RECREATION ACTIVITY?

1. ☐ Yes — How many? _____ (Go to question 15a).
 2. ☐ No — (Skip to question 21d on this page).

	Trip Record		
	Most recent	Second	Third
15a. Starting with your most recent overnight trip within the _____ season, where did you go on each of these? (Enter the place or destination of these 3 overnight trips here.) →			
b. How far from here is that?	Miles	Miles	Miles
16. What was the major purpose of your trip to . . . ?	Purpose	Purpose	Purpose
17. About how many miles did you travel altogether?	Miles	Miles	Miles
18. Did you go by private automobile or some other way? (Enter each means used).	1 <input type="checkbox"/> Auto	1 <input type="checkbox"/> Auto	1 <input type="checkbox"/> Auto
	2 <input type="checkbox"/> Other	2 <input type="checkbox"/> Other	2 <input type="checkbox"/> Other
19. How many days were you away on your trip to . . . ?	Days	Days	Days
20. How many people were in your immediate party?	Number	Number	Number

21a. Looking at the activity list on page 4 ASK yourself the question: "Of these activities which ones did I take part in during my trip to . . . ?" Then, check off (✓) in the "Yes Column" on page 4, for EACH overnight recreation trip, those activities in which you did take part in during that trip. (Note that there are separate "Yes Columns" for each of these three trips).

b. Were there any others not on the list? (If so, enter at bottom of list on page 4).

(Ask yourself for each activity you checked off on page 4).

c. On how many different days did I go . . . ? (Enter this number for each activity in the correct space provided in the "Number of days" column of each trip taken — enter on page 4).

d. You have now given information about the (3) trips you took primarily for outdoor recreation. Can you think of any OTHER overnight trips you took last _____. Which of the activities on the list (page 4) did you take part in on ALL of THESE OTHER trips combined?

OR check box ☐ if no other activities (Skip to Section II C, page 5).

e. (For these other overnight trips ASK yourself) "On how many different days did I go . . . ?" (Enter this number for each activity in the correct space provided in the "All Other Number of Days" column on page 4).

COMMENTS:

PAGE 5: SECTION II C

Now, think about any recreation **OUTINGS** you took this past _____. By a recreation outing, we mean an outdoor occasion **AWAY FROM HOME** occupying the **BETTER PART OF A DAY**, such as a day's picnic, a day at the beach or lake, a day's duck shoot, the better part of a day tobogganing, a day's pleasure drive, and so on.

(NOTE : Section III, page 7 concerns those activities taken part in when you only had a **FEW HOURS** available). Please do not report them on this page.

	No	Yes	If "yes" How Many
22. First, did you go on any outings in -- a. _____ →			
b. _____ →			
c. _____ →			

TOTAL NUMBER OF OUTINGS: _____ →

(If "0" skip to section III, page 7. If "1 or more" go to question 23).

	Outing record			
	Most recent	Second	Third	Fourth
23. Starting with your most recent outing in (refer to question 22) where did you go? (Enter the place or principal destination of the 4 most recent _____ outings here).				
24. (For each outing ask yourself) How far from here is that?	Miles	Miles	Miles	Miles
25. What was the major purpose of your outing to . . . ?	Purpose	Purpose	Purpose	Purpose
26. Did you go by private automobile or some other way? (Enter each means used)	1 <input type="checkbox"/> Auto 2 <input type="checkbox"/> Other _____	1 <input type="checkbox"/> Auto 2 <input type="checkbox"/> Other _____	1 <input type="checkbox"/> Auto 2 <input type="checkbox"/> Other _____	1 <input type="checkbox"/> Auto 2 <input type="checkbox"/> Other _____
27. Altogether, about how long were you away from home?	Hours	Hours	Hours	Hours
28. How many people were in your immediate party?	Number	Number	Number	Number

COMMENTS:

PAGE 6: SECTION II C (Continued)

29a. Looking at the activity list below ask yourself: "Of these activities which ones did I take part in during my outing to?" Check off (✓) in the appropriate column below those activities in which you did take part in during that specific outing.

b. Were there any other activities not on the list but in which you did take part?
(If so, enter at the bottom of the list).

c. (If you mentioned 5 or more outings in question 22, page 5 then)

Thinking of all the OTHER RECREATION OUTINGS TOGETHER that you went on last _____,
which of these activities did you take part in ? On how many different days did you
do each ?

(Enter number of different days for each activity here _____)

Line No.	Activity List	OUTINGS				
		Most Recent (✓)	Second (✓)	Third (✓)	Fourth (✓)	All other Number of days
1	Bicycling (for pleasure)					
2	Horseback riding					
3	Playing outdoor games or sports					
	Total (including golf and tennis)					
	Golf (only)					
	Tennis (only)					
4	Fishing					
5	Canoeing					
6	Sailing					
7	Other boating					
8	Swimming					
	Total					
	Lake, pond or stream (only)					
	Pool (only)					
9	Water skiing					
10	Hunting					
	Big and Small Upland Game					
	For water fowl (only)					
11	Camping					
	Developed Area					
	Remote or Wilderness Area					
12	Mountain and rock climbing with gear					
13	Hiking with pack					
14	Walking for pleasure (for 30 min. or more)					
15	Wildlife and bird photography (in natural surroundings)					
16	Nature walks (to observe birds, animals, plants, etc.)					
17	Picnics					
18	Driving for pleasure					
19	Sightseeing (viewing a historic scenic, or other attraction)					
20	Attending outdoor sports events					
21	Attending outdoor concerts, plays, etc.					
22	Ice skating (outdoors)					
23	Snow skiing					
24	Sledding and Toboggaming					
25	Snowshoeing (for pleasure)					
26						

PAGE 7: SECTION III

Now, this section considers all those other occasions of less than a day's duration. Therefore, think about all the other outdoor recreation activities you took part in, from last _____ to _____, in your neighbourhood or away from home when you had ONLY A FEW HOURS AVAILABLE.

(Ask for EACH activity)

30a. Did I go AT ANY OTHER TIME this past _____?

(Substitute the name of each activity in turn in place of the dots. Mark an "X" in either the "Yes" Column or the "No" Column below).

b. Did you take part in any other outdoor recreation activities not on the list?

(If so, enter in the blank spaces at the bottom of the list).

(Once all the activities below have been checked either "Yes" or "No", then ask)

c. On how many different days did I go (Other than the times I have already reported)?
(for each activity marked "X" in the "Yes" column).

(Enter number of days here) _____



Line No.	Activity List	No	Yes	Number of days
1	Bicycling (for pleasure)			
2	Horseback riding			
3	Playing outdoor games or sports			
	Total (including golf and tennis)			
	Golf (only)			
	Tennis (only)			
4	Fishing			
5	Canoeing			
6	Sailing			
7	Other boating			
8	Swimming			
	Total			
	Lake, pond or stream (only)			
	Pool (only)			
9	Water Skiing			
10	Hunting			
	Big and Small Upland Game			
	For Water Fowl (only)			
11	Camping			
	Developed Area			
	Remote or Wilderness Area			
12	Mountain and rock climbing area			
13	Hiking with pack			
14	Walking for pleasure (30 min. or more)			
15	Wildlife and bird photography (in natural surroundings)			
16	Nature walks (to observe birds, animals, plants, etc.)			
17	Picnics			
18	Driving and riding (for pleasure)			
19	Sightseeing (viewing a historic, scenic, or other attraction)			
20	Attending outdoor sports events			
21	Attending outdoor concerts, plays, etc.			
22	Ice skating (outdoors)			
23	Snow skiing			
24	Sledding and Tobogganning (including power units)			
25	Snowshoeing (for pleasure)			
26				

PAGE 8: SECTION IV

Most questions of this section are provided with check-type questions. Read the questions carefully, then mark an "X" in the box opposite the most accurate answer.

Name of Sample Person: _____

Address: _____

31.	Your Sex	Your Nationality	Your Occupation
1. <input type="checkbox"/> Male	_____	_____	_____
2. <input type="checkbox"/> Female	_____	_____	_____
Type of Industry: _____			

37. Did he finish this grade or year?

1. ☐ Yes 2. ☐ No

38. Please check the number below that corresponds to the total income of this family during the year of 196____.

This includes wages and salaries, business profits, net farm income, pensions, rents and any other money income received by the members of this family.

Yearly	Check
Under \$ 2,000	1. <input type="checkbox"/>
\$ 2,000 - \$ 3,999	2. <input type="checkbox"/>
\$ 4,000 - 5,999	3. <input type="checkbox"/>
\$ 6,000 - 7,999	4. <input type="checkbox"/>
\$ 8,000 - 9,999	5. <input type="checkbox"/>
\$10,000 - 14,999	6. <input type="checkbox"/>
\$15,000 - 19,999	7. <input type="checkbox"/>
\$20,000 and over	8. <input type="checkbox"/>

32. Have you a phone?	Your age of last birthday
1. <input type="checkbox"/> Yes	1. <input type="checkbox"/> 20 - 24
2. <input type="checkbox"/> No	2. <input type="checkbox"/> 25 - 34
(If "yes") number is _____	3. <input type="checkbox"/> 35 - 44
	4. <input type="checkbox"/> 45 - 54
	5. <input type="checkbox"/> 55 - 64
	6. <input type="checkbox"/> 65 and over

Are you presently Employed? 1. ☐ Yes
2. ☐ No

33. What is the highest grade (or year) of regular school you (as the sample person) have attended? (Check One box only)

- 1) Never attended school ☐
- 2) Kindergarten ☐
- 3) Elementary School 1 2 3 4 5 6 7 8
 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
- 4) High school 1 2 3 4
 ☐ ☐ ☐ ☐
- 5) University 1 2 3 4 5 6 or more
 ☐ ☐ ☐ ☐ ☐ ☐

34. Did you finish this grade or year?

1. ☐ Yes 2. ☐ No

35. (Check correct item below)

1. ☐ You (as sample person) are the head of this household.
2. ☐ You (as sample person) are NOT related to the head of the household.

Skip to
question
38

3. ☐ You (as sample person) are related to the head of the household.
(Go to question 36)

36. What is the highest grade (or year) of regular school the head of this household has ever attended?

(Check one box only)

- 1) Never attended school ☐
- 2) Kindergarten ☐
- 3) Elementary school 1 2 3 4 5 6 7 8
 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
- 4) High school 1 2 3 4
 ☐ ☐ ☐ ☐
- 5) University 1 2 3 4 5 6 or more
 ☐ ☐ ☐ ☐ ☐ ☐

39. Thinking back in time from yourself to your parents to your grand parents, etc., how many generations, which followed continuously in your family tree, were urban dwellers? By an urban dweller we mean a person living in a community larger than 10,000 persons.

1. ☐ 1 generation (myself only)
2. ☐ 2 generations (myself and parents)
3. ☐ 3 generations (myself and parents and grandparents)
4. ☐ 4 generations or more.

40. Please print below the name and address, phone (if known) of your nearest family relative.

Name & Address: _____

Phone number: _____

41. How accessible do you feel you are to those outdoor recreation areas and facilities you would enjoy using?

(Check one box only)

1. ☐ - very accessible
2. ☐ - fairly accessible
3. ☐ - poorly accessible
4. ☐ - not accessible
5. ☐ - no opinion

42. Do you or your family have a car?

1. ☐ - Yes 2. ☐ - No

YOUR CO-OPERATION IN THIS SURVEY IS APPRECIATED - THANK YOU.

This Calendar pertains to the season you are to consider

SUMMER — 1965

June							July							August						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
/	/	1	2	3	4	5					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30	31				

September

			1	2	3	4
5	6	/	/	/	/	/

This Calendar pertains to the season you are to consider.

FALL — 1965

September							October							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
/	/	/	/	/	/	/						1	2		1	2	3	4	5	6
		7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
26	27	28	29	30			24 ³¹	25	26	27	28	29	30	28	29	30				

This Calendar pertains to the season you are to consider.

WINTER -- 1965 -- 66

December

S	M	T	W	T	F	S
/	/	/	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

January

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
²³ ₃₀	²⁴ ₃₁	25	26	27	28	29

February

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	/	/	/	/	/

This Calendar pertains to the season you are to consider.

SPRING -- 1966

March

S	M	T	W	T	F	S
/	/	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

May

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	/	/	/	/

Coding Procedure and Punching Instructions for the Questionnaire

Two IBM cards were needed per questionnaire.

On the punching procedure it was necessary to make a distinction between answers of "0 or none" and "no reply." For instance, if a respondent declined to give his education we did not want "00" to appear in columns 20-21 of Card 1. This would have had the effect of lowering the average education. Therefore, for cases involving refusals or no reply, an X was punched in the high order column and the rest of the field was left blank.

Coding procedure and general punching instructions follow:

Card Number 1:

Cd. 1 Respondent's designated quarter-period:

Summer.1

Fall.2

Winter.3

Spring.4

Col. 2-4 Respondent's identification number.

Questionnaires were consecutively numbered as
to date of return.

Col. 5 Blank

Col. 6-7 Month completed questionnaire returned.

June.06

July.07

Col. 8-9	<u>Day completed questionnaire returned</u> Code was the date of return.
Col. 10	<u>Blank</u>
Col. 11-12	<u>Activity Score</u> Code could extend from 00 to 81.
Col. 13	<u>Blank</u>
Col. 14	<u>Sex</u> Male. . . .1 Female. . .2
Col. 15	<u>Age</u> 20-24. . . .1 25-34. . . .2 35-44. . . .3 45-54. . . .4 55-64. . . .5 65 & over. .6
Col. 16	<u>Nationality</u> Canadian. . . .1 Non-Canadian. . .2
Col. 17-18	<u>Occupation</u> Professional, technical & kindred workers.01 Farmers & Farm Managers.02 Managers, officials, and proprietors, except farm03 Clerical & kindred workers04 Sales workers.05

Craftsmen, foremen, and
kindred workers.06

Operatives and kindred workers . . .07

Private household workers, students
housewives, and retired.08

Service workers, farm laborers
and laborers09

Col. 19 Blank

Col. 20-21 Own education

Never attended school.1

Kindergarten2

Elementary school.3. some
"some value" was the grade level value
attained from 1 to 8.

High school.4. some
"some value" was the grade value
level attained from 1 to 4

University5. some
"some value" was the no. of value
years completed at University
from 1 to 6 or more.

Col. 22-23 Head's education

Included in female analysis only.

Same codes.

Col. 24 Blank

Col. 25 Generations urban

1 generation (myself only).1

2 generations (myself + parents) . .2

3 generations (myself + parents +
grandparents.3

4 generations or more4

Col. 26	<u>Accessibility</u>
	Very accessible.1
	Fairly accessible.2
	Poorly accessible.3
	Not accessible4
	No opinion5

Col. 27	<u>Residential distance zone.</u>
	0-2 miles.3
	2 ⁺ -4 miles2
	4 ⁺ -6 miles1

Col. 28	<u>Own car</u>
	Yes.1
	No2

Col. 29	<u>Blank</u>
---------	--------------

Col. 30	<u>Family income</u>
	Under \$2,0001
	\$2,000-\$3,999.2
	4,000-5,9993
	6,000-7,9994
	8,000-9,9995
	10,000-14,999.6
	15,000-19,999.7
	\$20,000 and over8

Col. 31	<u>Metropolitanism</u>
---------	------------------------

Codes ranged from 2 to 7. See scale construction, page 52.

Col. 32-33	<u>Total number of activities participated in</u> Codes could range from 0 to 25.
Col. 34	<u>Blank</u>
Col. 35-37	<u>Total amount of participation in activity days</u>
Col. 38	<u>Blank</u>
Col. 39-43	<u>Index of participation - total</u> Latter omitted from analysis.
Col. 44	<u>Blank</u>
Col. 45-48	<u>Index of participation--Passive outdoor</u> <u>pursuits.</u> Latter omitted from analysis.
Col. 49	<u>Blank</u>
Col. 50-53	<u>Index of participation--Active outdoor</u> <u>pursuits.</u> Latter omitted from analysis.
Col. 54	<u>Blank</u>
Col. 55-56	<u>Amount of participation--all water-oriented</u> <u>pursuits.</u> Latter omitted from analysis.
Col. 57-58	<u>Amount of participation--water-based outdoor</u> <u>pursuits</u>
Col. 59	<u>Blank</u>
Col. 60-61	<u>Amount of participation--special high-cost</u> <u>pursuits</u>
Col. 62	<u>Blank</u>
Col. 63-64	<u>Amount of participation--urban-oriented outdoor</u> <u>pursuits</u>
Col. 65	<u>Blank</u>

Col. 66-68	<u>Amount of participation--regional-oriented outdoor pursuits</u>
Col. 69	<u>Blank</u>
Col. 70-72	<u>Amount of participation--passive outdoor pursuits</u>
Col. 73	<u>Blank</u>
Col. 74-76	<u>Amount of participation--active outdoor pursuits</u>
Col. 77-80	<u>Blank</u>
<u>Card Number 2</u>	(in all activities, code was number of activity days per participant.)
Col. 1-4	Same as Col. 1-4 in Card Number 1.
Col. 5	<u>Blank</u>
Col. 6-7	<u>Playing outdoor games or sports</u>
Col. 8	<u>Blank</u>
Col. 9-10	<u>Fishing</u>
Col. 11	<u>Blank</u>
Col. 12-13	<u>Boating</u> (omitting canoeing or sailing).
Col. 14	<u>Blank</u>
Col. 15-16	<u>Swimming</u>
Col. 17	<u>Blank</u>
Col. 18-19	<u>Hunting</u>
Col. 20	<u>Blank</u>
Col. 21-22	<u>Camping</u>
Col. 23	<u>Blank</u>
Col. 24-25	<u>Picnicking</u>
Col. 26	<u>Blank</u>

Col. 27-28	<u>Driving and riding for pleasure.</u>
Col. 29	<u>Blank</u>
Col. 30-31	<u>Sightseeing</u>
Col. 32	<u>Blank</u>
Col. 33-34	<u>Attending outdoor sports events.</u>
Col. 35	<u>Blank</u>
Col. 36-37	<u>Ice skating</u>
Col. 38	<u>Blank</u>
Col. 39-40	<u>Snowskiing</u>

Not sufficient data for analysis.

Col. 41	<u>Blank</u>
Col. 42-43	<u>Sledding and tobogganing</u>
Col. 44-80	<u>Blank.</u>

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